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NATIONAL SECURITY COUNCIL  
WASHINGTON, D.C. 20506

July 17, 1984

Executive Registry

84-1352/5

AH. NIC 02345-84  
ER 84-303  
ER 84-1240142  
NIC 84-00235UNCLASSIFIED with  
~~SECRET~~ Attachment

## MEMORANDUM FOR

MR. CHARLES HILL  
Executive Secretary  
Department of StateMR. CHRISTOPHER HICKS  
Executive Secretary  
Department of the TreasuryCOLONEL R. J. AFFOURTIT  
Executive Secretary  
Department of DefenseMR. STEPHEN GLEASON  
Executive Assistant to  
the Secretary  
Department of the InteriorMRS. HELEN ROBBINS  
Executive Assistant to  
the Secretary  
Department of CommerceMR. WILLIAM VITALE  
Executive Secretary  
Department of EnergyMR. ALTON KEEL  
Associate Director for  
National Security and  
International Affairs  
Office of Management and  
BudgetMR. THOMAS B. CORMACK  
Executive Secretary  
Central Intelligence AgencyMR. JOHN A. SVAHN  
Assistant to the President for  
Policy DevelopmentMR. WILLIAM NISKANEN  
Member, President's Council  
of Economic AdvisorsBRIG. GENERAL GEORGE A. JOULWAN  
Executive Assistant to the  
Chairman  
Joint Chiefs of StaffMR. RAY KLINE  
Acting Administrator  
General Services AdministrationMR. LOUIS O. GIUFFRIDA  
Director, Federal Emergency  
Management AgencyMR. CHARLES SIEGMAN  
Associate Director  
Federal Reserve BoardMR. FRED J. VILLELLA  
Secretariat, Emergency  
Management Preparedness Board

SUBJECT: National Defense Stockpile Goals Review

Attached is a copy of the draft Input/Output report of the Macroeconomic Working Group for review and comment by your agency/department. Please circulate it to concerned officials within your agency/department and provide one set of comments on the report under the signature of an Assistant Secretary-level official to the NSC Executive Secretariat by Tuesday, July 24.

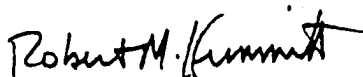
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The Steering Group will hold a meeting at 3:00 p.m. on Friday, July 27, in Room 208 of the Old Executive Office Building. Please provide the name of your agency/department representative to Cathy Connolly on 395-7350 by 4:00 p.m. Thursday, July 26, so that we can arrange clearance into the building.

  
Robert M. Kimmitt  
Executive Secretary

Attachment  
TAB A      Input/Output Report

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## THE WHITE HOUSE

WASHINGTON

Executive Registry

84-135214

July 13, 1984

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MEMORANDUM FOR THE SECRETARY OF STATE  
 THE SECRETARY OF THE TREASURY  
 THE SECRETARY OF DEFENSE  
 THE SECRETARY OF THE INTERIOR  
 THE SECRETARY OF COMMERCE  
 THE SECRETARY OF ENERGY  
 THE DIRECTOR, OFFICE OF MANAGEMENT AND BUDGET  
 THE DIRECTOR OF CENTRAL INTELLIGENCE  
 ASSISTANT TO THE PRESIDENT FOR POLICY  
 DEVELOPMENT  
 CHAIRMAN, COUNCIL OF ECONOMIC ADVISERS  
 CHAIRMAN, JOINT CHIEFS OF STAFF  
 ADMINISTRATOR, GENERAL SERVICES ADMINISTRATION  
 DIRECTOR, FEDERAL EMERGENCY MANAGEMENT AGENCY  
 CHAIRMAN, FEDERAL RESERVE BOARD  
 CHAIRMAN, EMERGENCY MOBILIZATION PREPAREDNESS  
 BOARD

AH-NIC 02345-84

ER84-303

ER84-12401/12

NIC 84-00235

SUBJECT: NSC Stockpile Goals Study Working Group Reports (U)

The President has reviewed the NSC Stockpile Study's working group reports and agency comments on those reports. The President has approved the reports (as presented in Robert M. Kimmitt's April 11 memorandum) for use, as appropriate, for National Defense Stockpile planning and related industrial preparedness programs to include Section 232 investigations. It is understood that subsequent work on input/output analysis and other tasks will be incorporated into the reports' findings when this information becomes available. This data will also be subject to interagency review. (C)

When the new stockpile goals are generated, an EMPB meeting will be scheduled to consider them. (C)

FOR THE PRESIDENT:



Robert C. McFarlane

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Central Intelligence Agency



Washington, D.C. 20505

Executive Registry

84-1352/3

17 APR 1984

AH. NIC 02345-84  
ER 84-303  
ER 84-1240 +1+2  
NIC 84-00235

MEMORANDUM FOR: Assistant to the President for  
National Security Affairs

SUBJECT: National Security Council Stockpile Study--  
Working Group Reports

My staff has reviewed and concurs in the general approach and planning assumptions to be used for establishing national defense stockpile goals and industrial preparedness planning.

/s/ William J. Casey

William J. Casey  
Director of Central Intelligence

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The Director of Central Intelligence  
Washington, D.C. 20505

National Intelligence Council

NIC #02345-84  
16 April 1984

MEMORANDUM FOR: Director of Central Intelligence  
Deputy Director of Central Intelligence

FROM: Maurice C. Ernst  
National Intelligence Officer for Economics

SUBJECT: NSC Stockpile Study

1. I recommend that you sign the attached pro forma memorandum to McFarlane, giving your concurrence on the planning assumptions of the stockpile study prior to their consideration by the President.

2. The working group reports of the NSC stockpile study are an improvement over the previous methodology used by the Federal Emergency Management Agency (FEMA) in 1976 and updated in 1979. At the same time, serious flaws remain:

- Few think the war scenario used (a three-year conventional war in Europe, the Middle East and Korea) is realistic, but in broad terms it is mandated by Congress.
- The wartime economic simulations were done on the Wharton econometric model, which uses peacetime data and parameters.
- Military programs are costed in terms of broad categories only; direct and indirect import requirements are inputted using the Wharton model.
- There are data only on direct purchases by DoD; purchases by defense contractors cannot be traced.

On the whole, the current study probably makes the best of a bad situation, which will not improve until better data can be collected on which to base serious mobilization planning.

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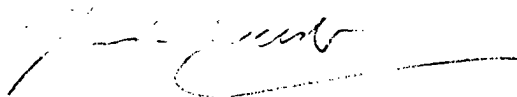


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4. You may wish at least informally (for example, at your regular weekly meeting with McFarlane) to raise your concerns about the broader issue of US dependence on foreign sources, not only for minerals, but also for key manufactures and technology. We may find that processing capacity in key manufacturing industries will be potentially a more difficult problem than minerals for future defense production planning.


5. I am told that the final stockpile recommendations are to be discussed at a Cabinet meeting in about two weeks.

  
Maurice C. Ernst

Attachments:

NSC Memo dtd 11 April 84  
NIO Econ Memo dtd 11 Jan 84  
Memo for DCI signature

~~CONCUR:~~

  
~~Director of Central Intelligence~~

~~Date~~

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Executive Registry

84-1240/2

MAR 29 1984

Att. ER 84-303  
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 ER 84-1352 +1 +2

Mr. Richard Levine  
 National Security Council  
 Old Executive Office Building  
 Washington, D.C. 20506

Dear Mr. Levine:

I am writing in regard to Macroeconomic Working Group's report in the  
 Stockpile Review Study.

We are conveying to the Working Group Chairman, Mr. Lincoln Anderson,  
 an extensive set of comments which we believe will be helpful in further  
 developing the work. At the moment we cannot concur with the report,  
 but we are optimistic that our differences can be resolved.

In the event some differences cannot be resolved, I am prepared to  
 discuss the problems with the appropriate person at the National Security  
 Council. Given that I am not an economist, and given that some of  
 these problems are of a technical as well as a policy nature, I would  
 plan to have Dr. Douglas P. Scott accompany me to such a meeting.  
 Dr. Scott is thoroughly versed in all aspects of the subject matter and  
 should help speed such a meeting to a successful conclusion.

Sincerely,

SIGNED

Bernard A. Maguire  
 Associate Director  
 National Preparedness

Enclosure

cc: CF 1  
 NP  
 NP-DAD  
 NP-RP-MR

Approved  
COORDINATION:

*Paul K. Krueger* 27 Mar 84  
 Paul K. Krueger Date  
 Assistant Associate Director  
 for Resources Preparedness

NP.RP.NR/Zahnowski/ps/FCP/617/2A7-3920/03.26.84 Disk 5

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Classified by Director, FEMA  
 Declassify OADR

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## FEMA CRITIQUE OF THE CEA/OMB MACROECONOMIC SCENARIO IN THE NATIONAL DEFENSE STOCKPILE REVIEW

(C) This report recommends the use of a "maximum wartime Gross National Product (GNP) growth" of 1.7-5.7 percent for 1983-86 in which the associated unemployment rate declines from 10.2 percent in 1983 to 9 percent in 1984 before reaching 6.6 percent in 1986. Meanwhile, inflation rises to the 12-22 percent range for 1983-85. Compared to 1983-86 peacetime forecasts and other wartime simulations rejected by the Working Group, a minimum GNP path (with maximum inflation) is a more accurate characterization of this war scenario because it appears that what is maximized is the economist's "misery index" for the United States economy. The unemployment rates developed are unprecedentedly high for all 20th century United States wars, and do not seem to be consistent with a full mobilization three-front scenario. In comparison, the World War II unemployment rate for 1941-44 declined from 9.9 percent to 1.2 percent, while real GNP growth ranged between 15.4 percent and 16.1 percent in 1941-43. New labor supply groups, women, and minorities, quickly were assimilated into the industrial work force under high wartime demand pressures. Real GNP growth did slow to between 7-8 percent in 1940 and 1944. Inflation averaged less than 5 percent in 1940-45 and never exceeded 10 percent.

### LOW LABOR WARTIME PRODUCTIVITY AND THE LABOR MARKET GLUT: LOW DEMAND PRESSURE POLICIES

(C) The GNP growth associated with the scenario's low wartime employment levels are lower than unconstrained estimates produced by the Wharton model. The results contain the effects of exogenously adjusting downward 29 SIC 2-digit production functions in the Wharton model by amounts implying that the Wharton model's wartime labor productivity gains were too high. Labor productivity rose more in 1950-51 (Korea) and in 1965-67 (Vietnam) than is assumed for the entire 1983-86 wartime period. A static 1983-86 labor participation rate and a sharp wartime increase in inflation from 12-22 percent in 1983-85 are the result of low demand pressure policies that restrict capital formation by permitting real interest rates to rise to 18 percent. The 1970's taught us that such low demand pressure policies are not the appropriate means of mitigating OPEC oil supply disruptions and their negative balance of payments effects. Such policies do not provide an efficient short-run inflation-GNP growth tradeoff appropriate for this World War II type of scenario. Other Wharton wartime simulations featuring DPA and tax investment incentives permitted much less consumer austerity while achieving 2 percent unemployment with less inflation. Low demand pressure policies do not test, but make self-fulfilling, the 1970's theory of changing labor structure causing full employment to occur at higher unemployment levels. In fact, the new labor supply sources of the 1970's first appeared in World War II. The same theory predicts full employment at falling "natural" unemployment rates in the 1980's.

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(C) The scenario does not achieve full employment, however defined, even by the third year of this three-front war. Unrealistically low wartime demands on labor (despite negative productivity adjustments) prevent labor supplies from constraining output in this large war scenario. Yet labor demands are not increased to reflect the Working Group's "double-shifting" of labor hypothesis. No war manpower policies are introduced. "Double-shifting" of labor should increase the labor participation rate. Part of the answer as to why there are no wartime labor shortages lies in the scenario's very low levels of defense wartime expenditures and manpower compared to those needed to actually achieve victory in this EMPB war scenario. Military spending approaches only 20 percent of GNP in 1986, but it exceeded 45 percent in World War II, although capacity bottlenecks appear to be serious throughout many manufacturing durables sectors. Three times as many personnel were under arms in World War II than in this five million man scenario, but United States casualties apparently are much higher in this war: the United States military force increases 1.15 million while 3.9 million are drafted in 1984-86.

(C) These inconsistent results appear to reflect the results of varying assumptions and policies imposed on the Wharton macroeconomic model. The effect is to exacerbate the pro-inflation and anti-GNP growth impacts of foreign oil supply losses. The model simulations constrained United States energy consumption to 67-69 quads throughout the war and did not employ nonprice rationing or energy controls to quickly and dramatically shift the United States' energy consumption toward the industrial sector and away from low wartime priority residential and auto uses. Many of the results achieved were not derived from the model, but were instead the consequences of the use of an extensive list of exogenized variables. No policy instruments were cited as the basis for the achievement of these results (even when instruments were available).

#### TOO MUCH CONSUMER AUSTERITY

(C) We believe consumer austerity should be required only to the extent necessary to free specialized materials, capital, and skilled labor required for the war economy. Additional austerity detracts from wartime work incentives and morale. General consumer austerity need not be imposed before full employment is reached. In the scenario, an operative constraint on more credible (i.e., higher) levels of employment and capacity utilization is the unneeded unnecessarily high level of civilian austerity imposed by preset levels of: (a) automobiles (i.e., zero); (b) housing (10 percent of capacity); (c) gasoline consumption expenditures; (d) savings rates; and (e) energy prices. Excise tax variables in the Wharton consumption equations could have reduced consumption somewhat while reducing the \$366 billion Federal deficit. No specific policies can be identified that move the wartime personal savings rate to 4.5-4.8 percent. Savings rates are kept constant despite extensive changes in the wartime real interest rates.

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(C) Since consumer dissavings occurred in many model simulations, presetting of the savings rate is tantamount to an unexplained large downward shift in the Wharton permanent income consumption function for all other goods on top of the arbitrarily forced downward shifts in auto, housing, and gasoline demand. Austerity is not needed in consumer nondurables (except oil) and services: no resources there are required by the war economy. If anything, other consumer goods demands should arise in substitution for unavailable autos, houses, and gasoline. Consumer demands should rise as war-swollen incomes become permanent rather than transitory income as they perceived that war will persist beyond the 4-year war horizon. Additional disposable income is available for spending elsewhere, since wartime prices for each type of housing were frozen because rising housing relative cost trends apparently were mistaken for luxury wartime housing.

#### EXPORTS AND NONDEFENSE GOVERNMENT SPENDING ARE DRASTICALLY REDUCED

(C) The study did not use the model's available export and import equations. Instead, values were preset for all categories of exports and imports for 1983-86. Exports were cut more sharply than imports despite extensive United States military aid commitments to allies. Unprecedented foreign energy shortages and extensive war losses of plant, equipment, and manpower abroad should have caused greater import reductions, especially in 1983-84. Large current account trade deficits (\$45-\$97 billion) result from optimistic presetting of uncontrollable import variables. It is possible that capital account financing of this deficit in terms of foreign investment and loans may not be available in wartime.

(C) Wartime spending by state and local governments (STL) is not a directly controllable policy variable. However, in the study STL government expenditures by category are all preset and feature 1986 cuts between 7 and 31 percent below modest 1982 levels. Likewise, STL employment is cut 12 percent. Nondefense Federal government spending is assumed to be one-half of Wharton peacetime expenditures by 1986. Similarly, all Federal transfers are preset and assumed to be cut 22-58 percent below 1982 levels. Even spending on veterans' benefits are cut 39 percent during the war. This austerity seems disproportionate to the modest military buildup and does not remove demand pressures on manufacturing durables and war industries. The massive Federal government deficit could be more quickly and efficiently reduced by high demand pressures resulting in higher tax payments and fewer unemployment based welfare handouts.

#### INVESTMENT SECTOR NEGLECTED: CAPACITY BOTTLENECKS THROUGHOUT THE MOBILIZATION BASE

(C) Wartime brings major shifts in industry demands for capital and labor. United States capacity utilization already averages 80 percent. Overall durables production grows almost 50 percent during the war while many industries double output rates. The inflation rate and the sectoral pattern of wartime inflation reflects major capacity bottlenecks in the mobilization industries. Unfortunately, capital is more industry-specific than is labor. The excess capacity of 90 percent in the housing

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industry cannot be transferred to the war industries. The study did not contain adjustments upward to the automobile production index for wartime conversion. This would have permitted the replacement of civilian demand by military track vehicle demands, nor was there any apparent attempt to solve this bottleneck situation. While these problems are assigned to the energy shortage, the real bond interest rates (Moody's bond rate minus GNP deflator inflation) were allowed to jump to 18 percent by 1986. Criticism of the Wharton investment equations for a static nonresidential fixed investment profile of wartime spending seems unwarranted in this instance. Manufacturing durables investment during the 1983-86 war period averages less than 1980-82. Rising inventory investment levels are necessary just to keep gross investment constant throughout the war.

(C) The study inaccurately characterized the Wharton 56 neoclassical-accelerator industry investment equations as inadequate without ever exercising any of the investment policy levers available in the model to alleviate war industries' capacity bottlenecks. The investment equations permit industry-specific changes in tax credits, depreciation schedules, tax lives, and tax rates. The study utilized no investment tax or preferential credit incentives for the war industries to build up their mobilization base in the warning year and early in the war. There is no DPA spending for the massive mobilization expansion required, including the materials industries' capacity expansion contrary to the assumptions of the Materials Supply Working Group and other NSC Stockpile Study Committees. The investment demands from a "crash" DPA spending program could mitigate the dysfunctional civilian austerity policies responsible for very high wartime unemployment path for 1983-86. DPA capacity expansion could mitigate the 12-22 percent wartime inflation rate of 1983-85 by relieving excess "demand shift" inflationary pressures on mobilization industries' capacity. An annual DPA investment program of more than \$100 billion, starting in the warning year and targeted at mobilization industries capacity expansion, in combination with investment tax incentives as war industry specific tax credits, tax life reduction, and rapid amortization of war plants would be necessary to handle realistic wartime demand pressures on industrial capacity. Such tax incentives would reduce the effective corporate income tax rates for mobilization industries to encourage their differential capital formation. The study doubles the effective corporate tax rate to 52 percent, while individual income tax rates increased only 35 percent during the war (to 16 percent).

#### INCOME DISTRIBUTION DISTORTED

(C) Profits continually rise from 6.7 percent of GNP in 1982 to 14.6 percent by 1986. Organized labor may not support the war effort wholeheartedly with such high wartime profits, when labor's share of GNP falls from 76 percent to 70 percent. Monoperational cosmetic "addfactoring"\*/ of endogenous

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\*/ Addfactoring is the act of manually adjusting a model's output when one doesn't like the results produced by the model. Endogenous variables are those whose results are "solved for" simultaneously in the model.

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distribution variables accentuates this trend. For example, \$108-\$126 billion annually is added to 1984-85 nonwage income. State and local interest payments are preset. Capital consumption allowances are addfactored \$30-64 billion in 1983-85 while the inventory valuation adjustment is increased \$40-\$50 billion in 1984-85, apparently for cosmetic reasons. These are not functionally related to wartime tax changes and impact on the relationship between book profits and economic profits. There remains an inexplicable \$71-\$129 billion negative inventory valuation adjustment in 1983-85. Use of wartime inventory credit controls by the Federal Reserve like those in past wars designed to prevent speculative hoarding could eliminate this problem.

#### ENERGY SECTOR: A MIXTURE OF MARKET AND COMMAND ECONOMY

(S) Persian Gulf petroleum capacity losses and the OPEC price setting (i.e., price leadership) OMS model were adapted to determine: 1) a preferred wartime price; 2) U.S. production; and 3) an import quantity profile for oil, all to be simultaneously submitted to the Wharton model. No model or market was used to consistently determine other energy prices or the respective consumption and production levels. These were predetermined rather than solved for by the Wharton model. As a consequence, market-based interfuel price differentials are ignored as oil prices increase drastically compared to other forms of energy. There is very little market-based consumer substitution of the cheaper energy forms or producer expansion of existing or new energy production sources. Likewise, non-oil energy imports are not responsive to United States energy market prices, far above controlled energy prices existing throughout the rest of the wartime world. The Energy Working Group overrode the Wharton model's energy demand, supply, and import price elasticities by presetting on a peacetime structural basis most energy consumption, production, and import levels, sometimes via maximum or minimum constraints. In passing, we note with curiosity the applicability of an OPEC-based model when most of that region is in the war zone.

(C) No energy output except coal is left completely unconstrained to respond to the Energy Working Group's arbitrary spectrum of energy prices, predetermined instead of being solved by the Wharton model. Wartime coal production exhibits no wartime growth, but exhibits an erratic wartime pattern in which production never exceeds 1982 levels. Nuclear, other geothermal, and hydroelectric capacity utilization output rates of 53, 65, and 43 percent, respectively, were predetermined by the Energy Working Group for the entire war at stable production levels which showed no sensitivity to either dramatically rising energy prices, wartime national energy policies, or the energy shortage crisis hypothesized for the United States economy in this war scenario. Likewise, natural gas imports and production were predetermined at constant "reasonable" peacetime standards of what was feasible (e.g., 20 percent maximum growth up to a maximum United States natural gas production of 20 trillion cubic feet regardless of the natural gas price). Output of natural gas liquids

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were preset at 1.5 mmbd for 1983-86. Consumption of natural gas by utilities was increased, but left undisturbed were preset peacetime energy consumption levels of oil, gas, and electricity in petroleum refining, oil and gas mining, and electric utilities. Wartime coal and natural gas's share of electricity generation increases 3-4 percent, but much greater gains are likely as electricity generation plants substitute away from oil which quadruples in real price.

(C) Despite the oil price runup, the Energy Working Group apparently assumed natural gas prices remain controlled until 1985. Imported natural gas prices were set at six times the domestic 1984 gas price, which does not appear to be a characteristic of an efficient gas market. The real price of gasoline is preset, but is allowed to decline once the war starts. Western coal prices are assumed to remain 43 percent of Eastern coal prices, but real prices of both are preset to decrease by 5 percent over the war. At the same time, ample United States coal productive capacity is left unutilized throughout the war. Is coal production not profitable at the assumed prices? Perhaps real coal prices and demand should have been modelled to rise substantially during the war in accordance with coal's energy substitution response to rising petroleum, natural gas, and other energy prices as well as rising wartime energy demands.

(C) The Wharton input-output price dual was not allowed to endogenously determine sectoral industry or consumer final demand energy prices consistent with the Energy Working Group's domestic and imported producer prices. The consumer gasoline demand response to these higher prices is determined by the Energy Working Group, rather than by the oil demand equation.

CONCLUSION: TOO SMALL A WARTIME ECONOMY TO SUCCESSFULLY PROSECUTE THE WAR

(C) The low level of the wartime economy posited for this scenario is unique--we believe it is too low to ensure U.S. military victory and full civilian support of the war effort. The U.S. peacetime performance in 1983 and 1984 far outstrips this "maximum growth war economy." Ideally, all defense programs should use the same war scenario so that resources can be spent on each defense program to the point of equal marginal return. It is inefficient to inadvertently model a small high risk stockpile while establishing low risks elsewhere in defense spending. But, by DON stipulation, this war scenario is not to be used for any defense program except the National Defense Stockpile study. The opportunity costs of this unique war scenario strategy are not made manifest. Unlike prior FEMA simulations, the study methodology did not first provide for simulations of the wartime economy in an unconstrained fashion to determine the GNP levels and distributions most likely to successfully prosecute the war. Then energy, materials, and other constraints should have been added one at a time to determine their wartime "opportunity costs" in terms of wartime output lost and consequent higher war risks of not achieving wartime victory. Decisionmakers then could compare these costs and risks with the earlier and more certain costs of augmenting the oil and materials stockpiles to prevent these wartime risks.

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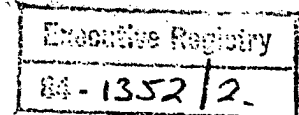
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(C) The study has immediately modelled a worst-case energy shortage combined with policies that exacerbated energy and capital problems while implying no labor wartime planning was needed. Previously, the war scenario did not constrain materials and energy stockpiles. An energy shortage scenario was not perceived to be the typical war scenario for the Strategic and Critical Materials Stockpile. The stockpile consequences of this new energy shortage scenario are to reduce stockpile goals below those needed to fight the major conventional wars we believe DOD is planning for in its other programs. A lower risk strategy involves increasing the oil stockpile sufficiently to greatly reduce the wartime risks suggested by this scenario. Energy would be stockpiled in quantities sufficient to eliminate a large portion of the estimated wartime energy shortfall between supplies and consumption necessary to produce a large enough wartime GNP to reduce war loss risks to tolerable levels. The current budget costs of such an augmented energy stockpile need to be compared with this scenario's much greater wartime costs and risks before this scenario is accepted as a basis to reduce stockpile goals.

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NATIONAL SECURITY COUNCIL  
WASHINGTON, D.C. 20505

April 11, 1984

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## MEMORANDUM FOR

MR. CHARLES HILL  
Executive Secretary  
Department of State

MR. THOMAS B. CORMACK ✓  
Executive Secretary  
Central Intelligence Agency

MR. CHRISTOPHER HICKS  
Executive Secretary  
Department of the Treasury

MS. JUDY JOHNSTON  
Director of Administration  
Office of Policy Development

COL. (P) JOHN STANFORD  
Executive Secretary  
Department of Defense

MR. WILLIAM NISKANEN  
Member, President's Council  
of Economic Advisors

MR. RICHARD MORRIS  
Executive Assistant to  
the Secretary  
Department of the Interior

BRIG. GENERAL GEORGE A. JOULWAN  
Executive Assistant to the Chairman  
Joint Chiefs of Staff

MS. HELEN ROBBINS  
Executive Assistant to the  
Secretary  
Department of Commerce

MR. GERALD CARMEN  
Administrator  
General Services Administration

MR. WILLIAM VITALE  
Executive Secretary  
Department of Energy

MR. LOUIS O. GIUFFRIDA  
Director, Federal Emergency  
Management Agency

MR. ALTON KEEL  
Associate Director for  
National Security and  
International Affairs  
Office of Management and Budget

MR. CHARLES SIEGMAN  
Associate Director  
Federal Reserve Board

MR. FRED J. VILLELLA  
Secretariat, Emergency Mobilization  
Preparedness Board

SUBJECT: Agency Comments on the NSC Stockpile  
Study's Working Group Reports (U)

National defense stockpile goals and industrial preparedness planning are currently rooted in assumptions and procedures of the previous Administration. In July 1982, President Reagan signed NSDD-47 which established general principles for mobilization preparedness and directed a thorough review of mobilization related programs and policies. In May 1983, the Joint Chiefs of Staff transmitted wartime planning scenarios which were adopted by the Emergency Mobilization Preparedness Board (EMPB). (U)

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Since June 1983, the National Security Council has chaired an inter-agency group to undertake a comprehensive review of the National Defense Stockpile and associated issues involving the Mobilization Preparedness Industrial Base. The Assistant to the President for National Security Affairs approved the wartime scenario involving full mobilization and the Secretary of Defense has provided estimates of DOD wartime expenditures. All working group reports have been approved at the Assistant Secretary level by those agencies and departments involved in the study, as planning factors for the stockpile and the related mobilization preparedness base. The Stockpile Study recommendations have been endorsed by the Assistant to the President for National Security Affairs and, upon receipt of Secretarial comments, will be forwarded to the President for review and approval. (U)

Attached are the EMPB wartime scenario adopted by Judge Clark for planning for a one-year mobilization three-year war (Tab A), and the defense expenditure estimates provided by Secretary Weinberger for this scenario (Tab B). Also attached are copies of the final reports of the working groups on shipping loss factors (Tab C), wartime reliability of minerals exporting nations (Tab D), the U.S. GNP planning level (Tab E), energy (petroleum) supply and price projections (Tab F), and domestic and international minerals supply which were derived from the wartime scenarios and defense expenditure estimates (Tab G). These reports made the following recommendations: (U)

### Scenario

The scenario (based on EMPB Scenario 3A) assumes full mobilization for a three-year war following a one-year warning. The maximum force level is about 5 million men with theatres of combat in Europe, the Middle East and Korea. (S)

Previous Presidential guidance in the 1976 Stockpile Study envisioned two theatres of combat with maximum forces during the three-year planning period of less than 4 million men. (S)

### Defense Expenditures

The Secretary of Defense endorsed a wartime defense expenditure pattern which reaches a peak of \$737 billion (1983\$)\*, a 310% increase over the 1982 level of \$179 billion. The SecDef has stated that DOD is undertaking a thorough review of defense requirements under Scenario 3A. DOD has advised the NSC that the current data are the best available and are suitable for policy decisions until the longer-term DOD study is completed. The longer term DOD study is expected to be completed in about eighteen months.

The 1976 stockpile study selected wartime expenditures which peak at \$597B. (S)

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\* The above defense numbers have been converted from 1972 dollars with 1972 dollars being used in the actual study.

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### Wartime Reliability of Mineral Exporting Nations

CIA, State, and DIA undertook a comprehensive review of the reliability of wartime supplies from 26 major mineral exporting nations. They considered political reliability and vulnerability to sabotage under the scenarios, and they determined that 13 nations are highly reliable for military and civilian needs, eight are fairly reliable for civilian needs only, and five -- [redacted] are unreliable. (S) 25X6 25X1

Present stockpile goals approved by the last Administration are based on a 1979 probability scoring model [redacted] 25X1

### GNP Planning Levels

The CEA-Treasury-OMB Working Group undertook a series of simulations of the wartime economy under Administration economic policy assumptions. They estimated that, even with substantial petroleum shortages, the wartime economy could grow at an annual 5% rate, sufficient to produce defense output and to meet civilian needs. (U)

Present stockpile goals are premised on assumptions of lower defense spending and a robust civilian wartime expansion with high levels of personal consumption. (U)

### Energy

CIA, DOE, FEMA, DOD and OMB comprised the Energy Working Group. The EMPB scenario envisions a major disruption of petroleum supplies from the Middle East because of military activity. The Energy Working Group has estimated that petroleum prices would rise substantially throughout the scenario with resulting adverse impacts on oil-consuming nations. For the U.S., the petroleum loss would be partially offset by increased production of other fuels. (U)

Present stockpile goals are based on different assumptions that oil prices rise very little throughout most of the war from peacetime levels. (U)

### Domestic and International Material Supply

The Bureau of Mines has provided estimates of possible wartime supplies of the most significant stockpile commodities. They have also estimated the likely domestic production increase from concerted national programs such as were realized under the Defense Production Act in the Korean War. (U)

Present stockpile goals assume that government demand for critical minerals and concerted DPA programs will be unsuccessful in bringing on required new capacity. (U)

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Shipping

A Navy, OSD, JCS, FEMA, OMB Working Group reviewed recent assessments of likely wartime damage to commercial shipping under the EMPB scenario. The conclusion of the group was that given the Administration's naval rearmament program, sea lane attrition losses would be comparable to the overall World War II loss level of 3%, with economic shipping experiencing even lower losses. (S)

The previous mobilization planning study made the assumptions that only 1-2% of each raw material destined for civilian consumption would be lost at sea, while 100% of the same material destined for producing military weapons would be lost. (U)

The Steering Group of the Stockpile Study has resolved the objections to the above studies which have been received from Assistant Secretary-level officials of concerned agencies. The attached reports represent the most significant planning assumptions to be used, as appropriate, for the stockpile and related industrial preparedness programs and investigations. The reports will be forwarded to the President with the recommendation that they be adopted for appropriate federal mobilization planning activities. Please provide comments and Department positions on each working group report for Presidential consideration not later than four working days from the date of this memorandum. Department comments should be at the Secretarial level.

Final Stockpile Goals will also be sent for Secretarial comments before being forwarded to the President. (U)

*Paul B. Thompson*  
for  
Robert M. Kimmitt  
Executive Secretary

Attachments

Tab A	EMPB Wartime Scenario
Tab B	Defense Expenditure Estimates
Tab C	Shipping Loss Factors
Tab D	Wartime Reliability of Minerals Exporting Nations
Tab E	U.S. GNP Planning Level
Tab F	Energy Supply and Price Projections
Tab G	Domestic and International Minerals Supply

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**NATIONAL SECURITY COUNCIL**

WASHINGTON, D.C. 20508

March 30, 1984

Executive Registry

84-1352/1

**CONFIDENTIAL**

HH. ER 84-305  
ER 84-12404/1

**MEMORANDUM FOR**

**MR. CHARLES HILL**  
Executive Secretary  
Department of State

**MR. THOMAS B. CORMACK**  
Executive Secretary  
Central Intelligence Agency

**MR. CHRISTOPHER HICKS**  
Executive Secretary  
Department of the Treasury

**MS. JUDY JOHNSTON**  
Director of Administration  
Office of Policy Development

**COL. (P) JOHN STANFORD**  
Executive Secretary  
Department of Defense

**MR. WILLIAM NISKANEN**  
Member, President's Council  
of Economic Advisory

**MR. RICHARD MORRIS**  
Executive Assistant to  
the Secretary  
Department of the Interior

**BRIG. GENERAL GEORGE A. JOULWAN**  
Executive Assistant to the Chairman  
Joint Chiefs of Staff

**MS. HELEN ROBBINS**  
Executive Assistant to  
the Secretary  
Department of Commerce

**MR. GERALD CARMEN**  
Administrator  
General Services Administration

**MR. WILLIAM VITALE**  
Executive Secretary  
Department of Energy

**MR. LOUIS O. GIUFFRIDA**  
Director, Federal Emergency  
Management Agency

**MR. ALTON KEEL**  
Associate Director for  
National Security and  
International Affairs  
Office of Management and Budget

**MR. CHARLES SIEGMAN**  
Associate Director  
Federal Reserve Board

**MR. FRED J. VILLELLA**  
Secretariat, Emergency Mobilization  
Preparedness Board

**SUBJECT: Minutes of the March 20 and 27, 1984 Stockpile  
Steering Group Meetings (U)**

The Steering Group reviewed the reports of the working groups on Energy, Macroeconomics, Domestic Materials Demand, Shipping, and International Supply/Demand Balances and acted as follows: (U)

**Energy**

The energy report, with changes discussed by Working Group Chairman, was adopted for stockpile planning and will be incorporated into the final report. (U)

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**CONFIDENTIAL****Macroeconomics**

The macroeconomic report, with changes discussed by the Working Group Chairman, was adopted for stockpile planning and will be incorporated into the final report. It was noted that the structure of civilian GNP could be altered as appropriate in subsequent I/O analyses of wartime investment (which will also partition the wartime economy into tiers for planning purposes). It was also agreed that the macro report could note that future research will be completed by DOD on the capacity expansion capability of industrial sectors producing DOD materiel. (U)

The Steering Group Chairman considered concerns by the Departments of Defense and Commerce that the current defense expenditure patterns and derivative civilian economic projections may not accurately estimate national security demand. The Steering Group Chairman said that a previous memorandum from the Secretary of Defense stated that "the all data can be used to develop policy recommendations for the stockpile pending completion of the ongoing DOD initiative to quantify defense mobilization requirements." The Group agreed that the Secretary of Defense's expenditure data of 2/15/81 would be used. The Steering Group agreed that the expenditures are the best available and are appropriate for use in Section 232 investigations (new DOD expenditure patterns are expected to be completed in about 18 months). The Steering Group Chairman made the point that changes in stockpile sales and acquisition patterns resulting from this study will have to receive special consideration at the highest policy levels at concerned agencies in order that changes in stockpile sales and purchases reflect appropriate domestic and foreign policy considerations. The Steering Group agreed that consideration of these types of concerns was outside the purview of the present exercise. (C)

**Domestic Materials Demand**

The report was adopted as drafted for incorporation into the final report. FEMA has agreed to implement the report's recommended changes in a timely fashion in order that the overall study be completed by the end of April. (U)

**Shipping Availability and Sea Lanes Attrition**

The report was adopted as drafted for incorporation into the final report. (U)

**International Supply/Demands Balance**

The report was considered by the Steering Group and a meeting was scheduled to discuss DOD methodological concerns. The results of those discussions will be incorporated into the final report.

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**CONFIDENTIAL**

presented at the next Steering Group meeting when the report will be considered for approval and adoption. (U)

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Robert M. Kimmitt

Executive Secretary

Robert M. Kimmitt

Executive Secretary

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Executive Secretary

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2617

NATIONAL SECURITY COUNCIL  
WASHINGTON, D.C. 20506

March 30, 1984

CONFIDENTIAL

## MEMORANDUM FOR

MR. CHARLES HILL  
Executive Secretary  
Department of StateMR. THOMAS B. CORMACK  
Executive Secretary  
Central Intelligence AgencyMR. CHRISTOPHER HICKS  
Executive Secretary  
Department of the TreasuryMS. JUDY JOHNSTON  
Director of Administration  
Office of Policy DevelopmentCOL. (P) JOHN STANFORD  
Executive Secretary  
Department of DefenseMR. WILLIAM NISKANEN  
Member, President's Council  
of Economic AdvisoryMR. RICHARD MORRIS  
Executive Assistant to  
the Secretary  
Department of the InteriorBRIG. GENERAL GEORGE A. JOULWAN  
Executive Assistant to the Chairman  
Joint Chiefs of StaffMS. HELEN ROBBINS  
Executive Assistant to  
the Secretary  
Department of CommerceMR. GERALD CARMEN  
Administrator  
General Services AdministrationMR. WILLIAM VITALE  
Executive Secretary  
Department of EnergyMR. LOUIS O. GIUFFRIDA  
Director, Federal Emergency  
Management AgencyMR. ALTON KEEL  
Associate Director for  
National Security and  
International Affairs  
Office of Management and BudgetMR. CHARLES SIEGMAN  
Associate Director  
Federal Reserve BoardMR. FRED J. VILLELLA  
Secretariat, Emergency Mobilization  
Preparedness BoardSUBJECT: Minutes of the March 20 and 27, 1984 Stockpile  
Steering Group Meetings (U)

The Steering Group reviewed the reports of the working groups on Energy, Macroeconomics, Domestic Materials Demand, Shipping, and International Supply/Demand Balances and acted as follows: (U)

Energy

The energy report, with changes discussed by Working Group Chairman, was adopted for stockpile planning and will be incorporated into the final report. (U)

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### Macroeconomics

The macroeconomic report, with changes discussed by the Working Group Chairman, was adopted for stockpile planning and will be incorporated into the final report. It was noted that the structure of civilian GNP could be altered as appropriate in subsequent I/O analyses of wartime investment (which will also partition the wartime economy into tiers for planning purposes). It was also agreed that the macro report would note that future research will be completed by DOD on the capacity expansion capability of industrial sectors producing DOD materiel. (U)

The Steering Group Chairman considered concerns by the Departments of Defense and Commerce that the current defense expenditure patterns and derivative civilian economic projections may not accurately estimate national security demand. The Steering Group Chairman said that a previous memorandum from the Secretary of Defense stated that "the data can be used to develop policy recommendations for the stockpile pending completion of the ongoing DOD initiative to quantify defense mobilization requirements." The Group agreed that the Secretary of Defense's expenditure date of 2/15/84 would be used. The Steering Group agreed that the expenditures are the best available and are appropriate for use in Section 232 investigations (new DOD expenditure patterns are expected to be completed in about 18 months). The Steering Group Chairman made the point that changes in stockpile sales and acquisition patterns resulting from this study will have to receive special consideration at the highest policy levels at concerned agencies in order that changes in stockpile sales and purchases reflect appropriate domestic and foreign policy considerations. The Steering Group agreed that consideration of these types of concerns was outside the purview of the present exercise. (C)

### Domestic Materials Demand

The report was adopted as drafted for incorporation into the final report. FEMA has agreed to implement the report's recommended changes in a timely fashion in order that the overall study be completed by the end of April. (U)

### Shipping Availability and Sea Lanes Attrition

The report was adopted as drafted for incorporation into the final report. (U)

### International Supply/Demands Balance

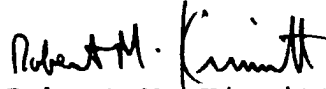
The report was considered by the Steering Group and a meeting was scheduled to discuss DOD methodological concerns. The results of those discussions will be

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presented at the next Steering Group meeting when the report will be considered for approval and adoption. (U)

  
Robert M. Kimmitt  
Executive Secretary

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NATIONAL SECURITY COUNCIL  
WASHINGTON, D.C. 20506

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March 20, 1984

Executive Registry

84- 1352

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ER 1240+11-84

## MEMORANDUM FOR

MR. CHARLES HILL  
Executive Secretary  
Department of State

MR. THOMAS B. CORMACK  
Executive Secretary  
Central Intelligence Agency

MR. CHRISTOPHER HICKS  
Executive Secretary  
Department of the Treasury

MS. JUDY JOHNSTON  
Director of Administration  
Office of Policy Development

COL. JOHN STANFORD  
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Department of Defense

MR. WILLIAM NISKANEN  
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of Economic Advisors

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Director, Federal Emergency  
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MR. ALTON KEEL  
Associate Director for  
National Security and  
International Affairs  
Office of Management and Budget

MR. CHARLES SIEGMAN  
Associate Director  
Federal Reserve Board

MR. FRED J. VILLELLA  
Secretariat, Emergency Mobilization  
Preparedness Board

SUBJECT: National Defense Stockpile Goals Review

Attached are copies of the draft reports of the Shipping and International Demand/Supply Working Groups for review and comment by your agency. Please circulate these to concerned officials within your agency and provide one set of comments on these reports under the signature of an Assistant Secretary-level official to Richard Levine of the NSC staff not later than Friday, March 23.

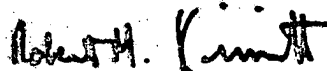
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The Steering Group will hold a meeting at 3:00 p.m. on Tuesday, March 27 in Room 2010 of the New Executive Office Building. Please provide the name of your agency's representative to Cathy Connolly on 395-7350 by 4:00 p.m. on Monday, March 26 so that we can arrange clearance into the building.

  
Robert M. Kimmitt  
Executive Secretary

Attachments

TAB A Shipping Working Group draft report  
TAB B International Demand/Supply Working Group draft report

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DEPARTMENT OF THE NAVY

OFFICE OF THE ASSISTANT SECRETARY

(SHIPBUILDING AND LOGISTICS)

WASHINGTON, D. C. 20380

MAR 20 1984

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MEMORANDUM FOR MR. RICHARD LEVINE

Subj: Sealane Attrition Working Group Final Report

The final report of the Sealane Attrition Working Group is attached for your review and distribution to agency representatives of the NSC Stockpile Study Steering Group.

The report includes the comments of the Working Group representatives from the Office of the Secretary of Defense, the Navy, and the OMB. We have not received comments from the JCS or FEMA.

EVERETT PYATT

PRINCIPAL DEPUTY

ASSISTANT SECRETARY OF THE NAVY

(SHIPBUILDING AND LOGISTICS)

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**NATIONAL DEFENSE STOCKPILE STUDY**  
**SEALANE ATTRITION ASSUMPTIONS**

The following attrition rates (Table 1) have been developed for use in modeling all material supplies. These rates are based on those features of Scenario 3/3A that directly relate to sealane attrition (Table 2) and are derived from previous interagency studies of wartime attrition. Those studies, directed at military rather than economic shipping and using these attrition rates, have shown that military sealift needs can be met from U.S./NATO fleets, and the following discussion of attrition and capacity applies only to economic shipping. The average attrition rate for each war year on each trade route should be calculated as the time-weighted average for each period in the year. The average rate should be applied to estimate the percentage of each commodity which would be lost, for all commodities shipped along the route. (C)

**ASSUMPTIONS USED IN THIS ANALYSIS**

Underlying Analytic Work. The attrition estimates are an extrapolation from the results of two detailed military shipping attrition analyses. The Sealift Study, performed by DOD, did not consider economic shipping, had a different scenario (no war in the Pacific and different timing), and used programmed U.S. (600 ship Navy) and Soviet forces -- not existing force levels. The Shipyard Mobilization Base Analysis (SYMBA) was an interagency examination of military and economic shipping during a three-year war, focusing only on a 1700 ship US/NATO/Japanese militarily - useful merchant Fleet and the adequacy of U.S. shipyards. (C)

Early Deployment of Soviet Forces. The Soviets engage in some pre-stocking of war reserves and minor repair items in surrogate and friendly areas at M-12 months. It was assumed there would be no unusual out-of-area deployments, however, as that would be inconsistent with Soviet naval doctrine. (S)

Soviet Reinforcement. At M+12 days, the scenario calls for the Soviets to reinforce their naval assets. We have assumed a balanced force deployment worldwide, except for some concentration of forces for homeland and SSBN defense. The Indian Ocean Squadron is augmented; moderate activity off West Africa; and increased presence in Vietnam (not in the Sealift Study, but necessary to show a capability to attack in the South Pacific). (S)

(Dept. Navy)  
 Multiple Sources  
 ORIGINAL CL BY \_\_\_\_\_  
☒ DECL ☐ REVW ON OADR  
 EXT BYND 6 YRS BY \_\_\_\_\_  
 REASON \_\_\_\_\_

Table 1  
Attrition Rates

<u>TIME</u>	<u>AREA 1/</u>	<u>AGGREGATE ATTRITION RATE (%) 4/</u>	<u>EFFECTIVE ECONOMIC SHIPPING ATTRITION RATE 5/</u>
day M+17 to day M+47	North Atlantic	8	3.2
	Other Major SLOCs 2/ except Japan 3/	4	1.6
day M+48 to day M+79	Major SLOCs	3	1.2
day M+78 to month M+4	Major SLOCs	1.5	0.6
month M+4 to month M+5	Major SLOCs	0.5	0.2
month M+5 to month M+21	Major SLOCs	0	0
month M+21 to month M+22	North Atlantic	4	1.6
	Other Major SLOCs	0	0
month M+22 to month M+23	North Atlantic	1.5	0.6
	Other Major SLOCs	0	0
month M+23 to month M+24	North Atlantic	.075	0.03
	Other Major SLOCs	0	0
month M+24 to month M+36	Major SLOCs	0	0

1/ Caribbean is a special case as are the SLOCs from Australia, South America, and South Africa -- see assumptions.

2/ Other MAJOR SLOCs = (1) Indian Ocean/Arabian Sea  
(2) South China Sea/Strait of Malacca  
(3) Central Pacific (Hawaii-Guam-Japan)  
(4) South Atlantic

3/ Based on scenario, there is no attrition in Japanese SLOCs before M+55.

4/ Probability that a ship will be lost on a particular sailing.

5/ Aggregate attrition rate times 0.4 -- see assumption on distribution of threat.

(S)

COMPOSITE SCENARIO 3/3A

<u>TIME</u>	<u>SCENARIO STATEMENT</u>
M-12 mo.	Soviet influence and military presence increasing in Asia, Middle East, North Africa, the Indian Ocean, and Central America.
M-4 mo.	Soviet Navy begins permanent deployment of 4-6 surface combatant ships to the Gulf of Mexico and Caribbean, operating out of a Cuban naval base.
M-14 days	US forward-deployed carrier, amphibious forces, and maritime pre-positioning ships reposition.
M-7 days	Amphibious transports to ports of embarkation (POE). MSC sealift to POEs. Ready Reserve Fleet breakout begins.
M+2 days	Lines of communication established from CONUS to conflict area (Persian Gulf).
M+7 days	Red Sea route no longer available to US shipping. US commences convoying of military shipping except D-Day "fast" sealift which deploys independently.
M+12 days	Soviet Northern, Black Sea, and Pacific Fleets are deployed. Naval forces in the Atlantic, Mediterranean, Indian and Pacific Ocean are reinforced.
M+17 days	Pact ground attacks in Europe are accompanied by attacks on: (1) US and NATO naval forces that are threatening Soviet forces or territory, (2) key LOCs, and (3) limited attacks on the flank. First convoy sails to Europe and subsequent convoys follow every six days thereafter.
M+41 days	Interdiction of US and friendly shipping continues at moderate level.
M+70 days	Damage to Western European air and sea ports have reduced their total capacities available to NATO to 70% and 76% respectively, restricting flows of reinforcements, supplies, and evacuees. During first 30 days of worldwide conflict, Soviet interdiction of shipping was at moderate rates worldwide and heavy in the Atlantic.
M+100 days	Total capacities of W. European air and sea ports remain at M+70 levels. During second 30 days of worldwide conflict, Soviet interdiction of shipping was less than levels achieved during first 30 days.
M+4 mo.	Soviet naval interdiction of lines of communication reduced to low levels worldwide.

Caribbean. The increased presence of Soviet naval forces in Cuba at M-4 months was not part of the base case in the DOD Sealift Study. An excursion in that study, however, analyzed augmented Cuban capabilities against several alternative U.S. responses and concluded that considerable U.S. effort would be necessary to neutralize this threat. If normal shipping rates and routes were used, losses could be as high as four ships per day for up to two weeks before the Cuban threat would be eliminated. It is assumed that much of the threat, however, would be focused on shipping leaving the U.S. from ports on the Gulf of Mexico; i.e. shipping of military goods and refined petroleum products for military use. During the estimated two weeks that it would take to neutralize the Caribbean threat, it should be possible to avoid significant attrition of imports to the U.S. by rerouting the shipping to Eastern ports and by sailing to the east of Cuba. We, therefore, do not expect any significant attrition of inbound cargo. (S)

Other Special Cases. It is assumed that shipping routes would be adjusted, where possible, to avoid sailing through high risk areas. Specific cases include Australia to U.S. and South America to U.S. For those routes, it is the opinion of the working group that attrition would be negligible. For the South Africa to U.S. trade, the group concluded that most of the threat could be avoided by sailing near South America and that attrition would be one-half of the rate assumed for major SLOCs. That estimate, which the group considers to be conservative, also partially takes into account the possibility of port disruptions in South Africa. (S)

Shipping Capacity. There are over 3,800 ships active in the free world that would be available at the start of a conflict and could be used for transporting raw and processed materials (Table 3). U.S., NATO, and Effective U. S. Controlled ships at the minimum total 1,730 ships at 72 million deadweight tons of the free world's vessels. In addition another 675 of the five world's vessels are in a laid-up status primarily due to overcapacity (based on a Marad staff estimate that 15% of the free world's inventory was laid up as of Jan. 4, 1984). Considerable overcapacity exists in the 3,800 operating ships. Observers of the shipping trade indicate that, because of the overcapacity freight rates do not cover voyage costs, ships are sailing slowly to conserve fuel, spending longer than necessary periods in port, and sailing with less than full loads. (U)

The SYMBA study estimated that, during the first fifteen months of war, the Soviets would hit a total of 313 merchant ships, of which 191 would be sunk and 122 could be repaired. Even if all hits were against bulk carriers (which represent only 20% of the merchant fleet) the bulk carrier fleet would be reduced by only

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9%. This is consistent with the EMPB scenario 3/3A which sees low Soviet interdiction of SLOCS at M+4 months. (S)

Based on an earlier Maritime Administration analysis of projected 1984 shipping requirements, the total number of ships needed for transporting raw materials to the U.S. would be in the range of 100 to 200 ships, or less than 6% of available shipping. (C)

During the hypothesized war scenario, shipping costs would rise, international trade in non-essential goods would diminish, so that even with the rates of attrition cited above, there appears to be more than an adequate number of ships available. In addition, most of the 675 ships estimated to be in a laid-up status, probably could be activated, if needed. (U)

**Table 3**  
**Shipping Capacity**  
**(Ocean Going Vessels of 1,000 Gross Tons and Over)**

	<u>Number of Ships</u>	<u>Thousands of Deadweight Tons</u>
World Inventory (Jan. 1, 1982)	4,987	194,368
Less:		
o Ships of Warsaw Pact Nations and others that would not be available.	-498	-12,732
o Estimated Number of Ships in laid-up status (15% of remainder)	-675	-27,300
Ships available at start of conflict	3,814	154,336

Source: "Bulk Carriers in the  
World Fleet"  
Maritime Administration  
June 1983

(U)

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Willingness of Ships to Sail. It is assumed that adequate shipping not only exists, but that it can be used. Based on past wartime efforts, there is no evidence to support the contention that ships will not sail or that adequate crews will not be available due to the wartime risks. Under the Merchant Marine Act, 1936, as amended, the Maritime Administration has the authority to provide war risk insurance for any vessel, regardless of ownership or nation of registry, that is carrying cargo vital to the U.S. war effort. A review of World War II experience revealed only one instance where a requisitioned ship refused to sail and that was due to a communication problem between the ship captain and owners. We have concluded that ships and crews would be available, assuming that measures similar to those taken in earlier wars would be taken under Scenario 3A. During World War II adequate numbers of crew members were obtained by paying bonuses that varied in accordance with the risk being faced and exemption from the draft. During Vietnam, a fixed bonus over base pay was used in the war zone. (U)

Port Attrition. The scenario explicitly states that seaport capacity in Western Europe would be reduced to 76% of its prewar level. Outside Western Europe, the working group believes that ports in South Africa constitute the main source of concern. For purposes of this study; however, port attrition outside Western Europe is assumed to be insignificant. Our concern over covert or overt action against South African ports is reflected in the conservative assumption on sealane attrition on the routes from South Africa to the U.S. (S)

Distribution of the Threat. As mentioned above, the rates were extrapolated from a study done for military shipping alone. Because the total size of the threat is essentially fixed, it was assumed for this study that the threat would be distributed between military and economic shipping targets at the rate of 60%-military and 40%-economic. We believe this allocation is the maximum threat that economic shipping would face. It was further assumed that the threat against economic shipping would be uniformly distributed among those regions where the Soviets can support their naval forces (with the exception of the North Atlantic, where higher attrition than on other SLOCs occurs early on -- see Table 1). (S)

## CONCLUSION

The attrition rates shown in Table 1 are applicable to all materials shipments, and time weighted averages should be calculated for each route and each war year. Expected shipping losses for each material are the product of the average annual attrition rate and the volume shipped as estimated by the Task 6 Working Group. (U)



By assumption of the scenario 3/3A and based on previous studies, shipping losses are generally small. The world-wide shipping overcapacity together with the projected decrease in wartime trade in non-essential items ensures that sufficient capacity will be available to transport the necessary quantities of strategic and critical materials. (U)

OFFICE OF  
ASSISTANT SECRETARY  
FOR INTERNATIONAL AFFAIRS

March 19, 1984

Memorandum for Dick Levine  
NSC Staff

From: Hazen Gale *Hazen*

Subject: Foreign Supply and Demand for Stockpile Materials

Attached is the final report of the task force on foreign supply and demand for stockpile materials. The report provides a new procedure for estimating the availability of foreign supplies in meeting U.S. requirements. The Departments of Commerce and Interior and the CIA concur with the report. DOD and FEMA have reservations which they will submit to you separately. I have received some late comments from the State Department which I will try to incorporate into the report.

The major features of the new procedure, which relies heavily on a market clearing mechanism to allocate supplies, are as follows:

- Estimates are made of demand in non-communist foreign countries during wartime.
- Foreign demand is adjusted for damage in war zones.
- Foreign consumer demand is further reduced due to the higher prices which would be necessary to bring about a balance between supply and demand.
- The foreign demand reduction represents a sharing (with the U.S.) of the burden of rationing the available supply.
- The U.S. would import the remainder of the foreign supply after foreign demands (at higher prices) have been met.

#### The FEMA Critique

FEMA, in a separate critique, has made several comments on the procedure and assumptions used in the study. Nearly all of those comments either do not affect the basic procedure (relating instead to the work of other task groups) or they raise questions about the overall guidance for the stockpile review study.

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- 2 -

The first point raised by FEMA was that the task report exceeded its mandate by incorporating adjustments for shipping losses and political reliability of sources. Technically, this may be correct, but these steps were considered necessary so that the steering group could see how the components of the stockpile estimating process fit together. If the Steering Group wishes to adopt alternative estimates for these components, they can be substituted when the final estimates of stockpile goals are computed; such alternatives would not affect the general procedure for estimating the availability of supplies from the rest of the world.

The second point mentioned by FEMA is that the task study made an unwarranted assumption that the U.S. would be able to effectively bid for the materials to meet much of its domestic requirements. We believe that the U.S. certainly should be able to compete in a world market for the available supply. Undoubtedly, prices would be bid up in the process of acquiring the needed materials, but there is little question that we could get a major share of the supply. I would point out that the procedure does not force the entire burden on foreign consumers. U.S. nondefense-related sectors would also be expected to share in this burden because there would be no provision to stockpile for those demands.

A third point is that demand in foreign countries was not allowed to grow fast enough to reflect wartime demand in those countries. That may be true, but we were unable to locate any definitive information on how those economies would behave in wartime. No econometric or input-output models are available which can estimate the materials demands in those countries. If FEMA or other agencies can make reasonably alternative estimates of the foreign demand, they can be easily inserted into the procedure. However, the larger the foreign requirements are, the greater will be world excess demand, which in turn implies higher prices and a larger reduction in demand via the price mechanism -- assuming we continue with the basic market clearing procedure in the task study. Thus, the net amount consumed in foreign markets would not be greatly different from that shown in the table.

Perhaps the most important comment by FEMA is its questioning of the use of a market clearing procedure in estimating the available supply from the rest of the world. (DOD has raised similar questions.) Rather, they suggest that the control programs similar to those used in previous wars would again be brought into operation because governments would not permit the seemingly "unfair" distribution of supplies by the pricing system.

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This view ignores that the price system is the most efficient mechanism for allocating a relatively fixed supply. We can always cite flagrant examples where materials go to nonessential uses, but we often overlook the many, many invisible misallocations when administrative controls are used to allocate supplies. We have learned from the oil and cobalt experiences that market prices can bring about enormous conservation efforts. Furthermore, the Government would not be relying entirely on the market clearing process; it will have a substantial stockpile to reduce the potential for extremely high prices of major critical materials.

FEMA's fifth point is that the procedure causes any errors in the estimates of foreign supply and demand to be magnified in the "residual" stockpile. They are correct. However, I would like to point out that any estimate of stockpile requirements is ultimately a residual. FEMA's 1979 estimates are residual, but they did build in cushions along the way to buffer the effects of errors on the shortage side. Consequently, FEMA is really raising the question of the degree of risk that the U.S. Government is willing to undertake during wartime. My understanding is that the NSC is willing to consider alternative risk levels: the 1979 FEMA methodology represents one risk level, while the Steering Group has been willing to consider a higher risk level; I believe the task study on foreign demand/supply reflects the Steering Group's mandate for an alternative risk level.

Finally, FEMA raised some points related to: (1) availability of ships to move imports of materials to the U.S., (2) availability of fuels to produce the materials in foreign countries, (3) the feasibility of achieving the projected foreign supplies, and (4) assurances that DPA and other programs will be implemented to enable U.S. production to increase to projected levels. These issues are under the jurisdiction of other task groups and the Steering Group as a whole and will have to be addressed by them. Their findings should not affect our procedure of estimating the foreign supply/demand balance, only the numbers would change if the findings of those groups call for revisions in their procedures and estimates.

Attachment

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Methodology for Computing  
Stockpile Goals, 1984

Foreign Supply and Demand

The determination of the imbalance between U.S. wartime requirements and available supplies will depend to a large extent on the supplies available from the other countries. In the 1979 stockpile study, FEMA assumed that the U.S. would have access to the same proportion of free world supply during wartime as it imported during the prewar period. Those initial estimates of supplies from other countries were reduced as appropriate for shipping losses and politically unreliable sources.

The procedure was based on questionable assumptions about demand in the rest of the world and about the ability of the U.S. to gain access to foreign supplies. First, during wartime, we could reasonably expect the U.S. to make a determined effort to increase the quantities of materials that would be imported well beyond its traditional shares. This could be done by simply outbidding other importers, by special bilateral supply arrangements or by negotiation among allies on how to allocate supplies. Second, it is highly unlikely that foreign demand would expand to absorb the expected large increase in free world supplies for three reasons: (1) Sharply reduced economic activity within war-zone nations; (2) Likely rates of economic growth in other countries would not raise demand by large amounts; and (3) the increase in U.S. demand can be expected to raise prices significantly, thereby inducing foreign consumers to forego consumption.

-- Improved Methodology

The working group has adopted a new methodology which provides more reasonable estimates of other countries' likely demand levels due to higher economic growth and offsetting demand reductions in those countries during wartime due to war damage or response to sharply higher prices. Then a comparison of this reduced demand with available world supply would indicate the amount of supply the United States could reasonably expect to import in the war scenario. The supplies available would usually be substantially different for most commodities from those estimated under the old FEMA assumptions.

The attached step-by-step explanation illustrates the procedure for chromite.

Outline of Procedure

The general assumptions underlying the new procedure are:

- Initial basic (or potential) demand by the non-communist foreign countries, for the materials in a full employment economy (at prewar prices) would be equal to the peak demand in the prewar period.

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- This initial basic demand was reduced by war damage in the war zones because reduced overall industrial capacity would reduce demand proportionately to obtain foreign potential net demand.
- When this foreign potential net demand is added to U.S. demands, the sum greatly exceeds the total supply available. The shortage was assumed to be allocated by price among all non-communist nations.
- Thus, foreign potential net demand was further reduced by estimating the cutback in consumption, due to higher prices which is necessary to equate demand with projected supplies (reflecting substitutions and various austerity measures). The result is foreign net demand.
- This reduction in foreign demand was estimated by allocating the total world reduction to foreign countries based on assumed elasticities weighted by the shares of each area in world demand.
- The foreign supply available to the U.S. (or imported supply) is then the difference: total available foreign free-world supply less the foreign net demand. The difference between U.S. requirements and total supply (U.S. domestic production plus imports) is the imbalance to be met from the stockpile.

#### Adjustments for political reliability

Use of the conclusions of the Task Force on political reliability presented some problems in adjusting supply available. These were handled in an ad hoc manner in the attached chromite example; similar problems may have to be addressed for other commodities.

First the Task Force only evaluated 26 countries, albeit the most important commodity suppliers. Thus, suppliers such as Iran, Finland, Turkey, and Madagascar were not rated as to reliability. Of course the Soviet Bloc was considered unreliable. We arbitrarily decided to treat Iran and Finland as unreliable for the whole non-communist area because they would be in the war zone. Zimbabwe also was considered unreliable according to Task Force criteria. Turkey, South Africa, and Madagascar were considered fairly reliable. Other countries which were not identified by the Task Force were considered highly reliable. Such ad hoc decisions will be required for other commodities.

Second, we believe the reliability of supplies from India and China need to be considered separately. The Reliability Task Force was clear in its finding that the U.S. should not count on access to supplies from those countries. The likely unavailability, however, was based more on those government's policy decisions

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rather than on internal disruption, such as might occur in Zaire, Zambia, and Zimbabwe. Consequently, Indian and Chinese supplies would probably be available to many other countries, but not to the United States. Thus, supplies from Zimbabwe are deducted at an early stage in the attached procedure, while Indian supplies are deducted only from potential imports. China could be handled similarly, if data are available; since it does not produce chromium the issue did not arise here.

Attachments

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 DERIVED FROM FEMA & NSC Material  
 dated 11/14/83

S E C R E T

# Strategic Stockpile Goals: Estimation of Foreign Supply and Demand During Mobilization and War

## Purpose

A major consideration in determining stockpile goals for strategic materials is the availability to the U.S. of materials from world markets which in turn depends on demand and supply conditions in other countries. Although the U.S. undoubtedly could by various means gain access to virtually the total non-communist supply, other allied countries will need supplies of these materials to enable effective operation of their economies. This paper describes a procedure for estimating an equitable demand reduction in the rest of the world, taking into account a probable response to high prices, which would determine the supply available to meet U.S. needs.

## Procedure

The general procedure is to adjust the Bureau of Mines' world production estimates in (table A) to exclude Soviet Bloc supplies, politically unreliable supplies, and shipping losses.

Estimated consumption in the U.S. will come from the domestic requirements task group. These estimates reflect price/scarcity induced substitutions and austerity all U.S. requirements will be met from imports, stockpiles, or domestic production. The potential consumption in war time for the rest of the non-communist world (in table B) is estimated to be at the peak pre-war level. The latter is adjusted to exclude lost demand due to war damage in certain war zones. The potential demand is further reduced, in response to high prices or some other rationing device. This last calculation is critical in determining how the burden of adjusting to the supply constraint is spread among the U.S. and other non-communist consumers. In general, it is assumed that the burden is shared proportionately among all foreign nations. Finally, the quantity available to the U.S. from allies and other non communist areas is the difference between the supply and demand estimates for ROW shown in table C.

Supply estimates (table A) were developed for each major producer and for the world by the Bureau of Mines. These represent capacity that could be brought on stream at significantly higher prices (about 50% over 1978-82 average prices for common materials). Production is the only source of supply; commercial stock drawdowns have been ignored here but they might be an important source in the U.S. for some materials. The added supply that could be generated in the U.S. due to extraordinary measures is shown in table C as a separate source of U.S. supply.

S E C R E T



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world (ROW), the supply estimates were adjusted to exclude production by the Soviet bloc since those supplies would not be available to the West. U.S. supplies also were deducted from the world total because they will be used first to meet U.S. requirements.

Political reliability. World supplies are further reduced to exclude those supplies which would probably not be available to western countries during war time. The Task Force on reliability determined supplies from Zaire, Zambia, and Zimbabwe would probably be disrupted because of internal instability or sabotage. Thus all of the supplies from these areas were deducted.

We also deducted supplies from Iran and Finland, since they are in the war zones and their supplies could not be expected to be available to the West.

India and China were considered unreliable suppliers to the U.S., but it was thought their supplies would be made available to at least some countries in ROW. Therefore, these supplies are deducted only from the U.S. imported supply at a later stage in table C.

Shipping losses. These were deducted from the total in determining the supply available to the U.S. and ROW. They are consistent with estimates used by other task groups. The assumption is that shipping losses will average 6% in the first war year, 3% in the second year, and 1% in the third year. We have found no evidence to indicate that losses for individual commodities would be significantly different. Also, there is no differentiation of shipping losses destined for the U.S. as opposed to ROW.

Energy availability and international trade considerations. No adjustments were made to supply to cover the possibility of curtailed output because of energy shortages or inadequate shipping capacity. It is assumed that mineral production would get an allocation of oil or other energy sources sufficient to maintain output at capacity levels and that adequate shipping would be made available to transport the materials from sources of supply to the markets.

Demand estimates (table B). Potential demand for each country in the war period has been projected at the peak consumption in the pre-war period. In most cases 1980 seems to be the peak year, but for certain commodities and countries peaks were attained in other years.

In the case of the U.S., domestic supplies are deducted from U.S. consumption under the presumption that they will be used first in the U.S., thus reducing U.S. demands on supplies from the rest of the world.

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War damage to demand is an estimate of reduced demand in certain countries because of damage to industries from military activities in the war zones. Industrial capacity is presumed to be completely destroyed in some countries and reduced significantly in others in Western Europe and Asia. The proportional reductions are the same for all materials and roughly consistent with the estimate of war damage used by the energy task group. More precise estimates for individual materials might be possible in a few cases but these would depend on information regarding use of materials by particular industries and the geographic location of these within those countries in the war zones. That information is not readily available.

Net demand after war damage reflects the amount of material that would be consumed at the base period price if the supply were available. Since supply will usually be less than demand, price will have to rise to ration the supply. The necessary cutback in demand is the difference between the supply available to the U.S. and ROW and the net demand after war damage. This difference is shown in the addenda item "required demand reduction." The percentage reduction in demand is in parentheses.

Demand impact is an estimate of the reduction in demand in response to high prices that are expected to accompany the high demand and limited supply situation during wartime. The exact prices are not necessary in allocating the demand reduction, but it was thought useful to make some estimates (see addenda). These price estimates varied significantly depending on the price elasticity for each major consuming country and its relative share of total consumption. Several aggregate elasticity estimates (e) were constructed based on assumed elasticities for three major areas: (1) the U.S., (2) other allies, and (3) other non-communist countries; these also are shown in the addenda. Three sets of elasticities were weighted by the distribution of "peak demand" in the war years. The following illustrates the procedure:

	<u>Elasticities</u>			<u>Distribution of demand</u>	<u>Weighted elasticities</u>		
	1)	2)	3)		1)	2)	3)
U.S.	0	-.2	-.5	30	0	.060	.150
Other allies	-.2	-.2	-.5	48	.096	.096	.240
Other non communist	-.4	-.4	-1.0	22	.088	.088	.220
Total				100%	-.184	-.244	-.610

The weighted elasticities were used to develop a percentage distribution of the demand reduction among major areas (U.S., allies, and other non communists) to bring consumption into balance with available supplies. In the example above, about 75 percent of the reduction was allocated to non U.S. demand ( $(\frac{.096 + .088}{.244})$ ).

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The assumed elasticities are critical to the sharing of the burden of demand reduction because the selection will determine whether the U.S. bears the full burden (when non-U.S. elasticities are zero) or none of it (when the U.S. elasticity is zero). The procedure used in table B uses an elasticity of 0.2 for the U.S. and its allies and 0.4 for other non-communist consumers.

The total reduction in demand was allocated according to the percentage distribution of weighted elasticities as described above. However, only those parts allocated to non-U.S. areas were deducted from total net demand because the U.S. domestic requirements presumably already reflect the elimination of non-essential uses through response to high prices and any necessary austerity measures.

Net demand on ROW supplies. This estimate is derived by deducting the demand reduction from net demand after war damage. This includes U.S. demands plus those from allies and other non-communist areas. This total actually overstates actual demand because U.S. imports will be smaller by the amount of withdrawals from its stockpiles or commercial inventories.

To determine demand in ROW (outside the U.S.), U.S. demand was subtracted from total demand.

Finally, the supply-demand balance (table C) in ROW is simply the excess of ROW supplies over ROW demand. This balance (highly reliable and fairly reliable) is the amount available for U.S. imports. These imports together with U.S. production will be used to meet the U.S. war time requirements. Any remaining imbalance would be met from stockpiled materials. Note that only highly reliable imports would be used to meet Defense requirements.

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11-14-83

S E C R E T

Supply and Demand for Chromium 1/  
(thousand tons)

## PART A

Item	1980	1982	1983	W-I 1984	W-II 1985	W-III 1986
<u>Supply</u>						
1. Total supply	3066	2610	4132	4332	5259	6215
2. Less: Soviet bloc 2/	-1102	-1117	-1310	-1510	-1811	-2111
3. Net non-communist supply	1964	1500	2822	2822	3448	4104
4. Less: Politically unreliable 3/	0	0	0	-520	-596	-702
5. Net supply to ROW	1964	1500	2822	2302	2852	3402
6. Less: Shipping losses 4/	0	0	0	-138	-86	-34
7. Net deliverable supply	1964	1500	2822	2164	2766	3368
8. Less: U.S. production 5/	-53	-48	-60	-60	-65	-70
9. Net supply available, ROW	1911	1452	2762	2104	2701	3298
10. Addenda: U.S. Concerted program (USCP) 6/	--	--	--	2	117	237

0. Supply available to row 2/

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Supply and Demand for Chromium. 1/  
(thousand tons)

## PART C

Item	1980	1982	M 1983	W-I 1984	W-II 1985	W-III 1986
<u>Supply-Demand Balance</u>						
1. U.S. and ROW <u>2/</u>						
2. Supply	1964	1500	2822	2164	2766	3368
3. Demand	2398	1925	2858	2244	2463	2642
4. Balance	-434	-425	-36	-80	+303	+726
5. ROW						
6. Supply <u>3/</u>	1911	1452	2762	2104	2701	3298
7. Demand <u>4/</u>	1866	1654	2048	1434	1648	1822
8. Balance	+45	-202	+714	+670	1053	1476
9. Highly reliable <u>5/</u>			112	105	141	174
10. Fairly reliable <u>5/</u>			548	514	844	1218
11. Unreliable <u>5/</u>			54	51	68	84
12. U.S.						
13. Supply <u>6/</u>	507	277	720	681	1167	1699
14. Normal <u>7/</u>	53	48	60	60	65	70
15. USCP <u>7/</u>	--	--	--	2	117	237
16. Imports <u>8/</u>	454	229	660	619	985	1392
17. Highly reliable	--	--	112	105	141	174
18. Fairly reliable	--	--	548	514	844	1218
19. Requirements <u>9/</u>	532	271	810	810	815	820
20. Defense			600	600	600	600
21. All other			210	210	215	220
22. Imbalance	--	--	-90	-129	+352	+879
23. Defense <u>10/</u>			-428	-433	-277	-119
24. All other <u>11/</u>			+338	+304	+629	+998
25. Addenda Foreign supply <u>12/</u>	1658	1220	2242	2242	2787	3332
26. Highly reliable	260	241	352	352	372	392
27. Fairly reliable	1321	898	1720	1720	2235	2750
28. Unreliable	77	81	170	170	180	190
29. Ratio <u>13/</u>	--	--	.315	.299	.378	.443

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## PART A

1/ These tables illustrate a procedure which would be used to estimate the U.S. supply/demand balance for strategic materials during a 3-year, 2-front war. The war years are 1984 (W-1), 1985 (W-2), and 1986 (W-3); 1983 (M) is the warning year; 1980 is the approximate pre-war peak for the U.S. and other economies; and 1982 is considered the base year. ROW refers to the Rest of the World -- countries outside the U.S. but excluding the Soviet bloc; it is essentially the non-communist world outside the U.S. (U)

It is assumed that Soviet Bloc supply and consumption will be isolated from (ROW). If the Soviets are able to keep importing from ROW, then those supplies presumably would be obtained from unreliable or fairly reliable sources and would be excluded at later stages. (U)

Supplies which would be unavailable to the whole non-communist world. The political reliability task force indicated that Zimbabwe, Zaire, and Zambia supplies would probably not be available because of internal disruptions. For chrome we have assumed supplies from Finland and Iran also are not available. Supplies from China and India are considered unreliable for the U.S. but available to ROW, so are not excluded here; they are deducted later from supplies available to the U.S. (S)

Shipping losses were assumed to be 6% in W-1, 3% in W-2, 1% in W-3, which correspond roughly with the 3% average losses over the 3 years of the war estimated by the shipping committee. (S)

It is assumed that all of U.S. production will be used to meet U.S. demand and thus will not be available to ROW. (U)

Bureau of Mines data; not included in supply estimates shown above. These quantities can be used to reduce the U.S. supply/demand imbalances. (U)

Sources: Basic supply data were compiled by the Bureau of Mines. Politically unreliable supplies based partly on that task group's findings and partly on Dept. of Treasury judgment. Shipping losses from the shipping study.

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PART B

- 1/ These tables illustrate a procedure which would be used to estimate the U.S. supply/demand balance for strategic materials during a 3-year, 2-front war. The war years are 1984 (W-1), 1985 (W-2), and 1986 (W-3); 1983 (M) is the warning year; 1980 is the approximate pre-war peak for the U.S. and other economies; and 1982 is considered the base year. ROW refers to the Rest of the World -- countries outside the U.S. but excluding the Soviet Bloc; it is essentially the non-communist world outside the U.S.
- 2/ From line 9 of Part A. This is the amount of deliverable supplies available in ROW; the U.S. would also have access to those supplies to help meet its wartime requirements.
- 3/ Total demand in prewar years was compiled by Bureau of Mines. In war years net demand (net of Soviets and China) was the sum of the separate demands shown below.
- 4/ Soviet and Chinese demands were assumed to be isolated from ROW, so are not included in wartime demand. If these two draw on ROW supply, then prices would be higher and ROW supply available to U.S. and ROW would be lower than indicated in this table. Estimates of total Chinese consumption are not available even in pre-war years.
- 5/ U.S. primary and secondary production, but not USCP (see lines 9 and 10, part A). This was deducted to determine U.S. external demand and total demand on ROW supplies (line 0); U.S. production was assumed to be used exclusively to meet U.S. requirements.
- 6/ Demand in ROW during war years, at pre-war prices, plus U.S. wartime external demand (not satisfied by U.S. production). This will be adjusted downward for damage to economies in the war zones and consumer cutbacks in response to higher prices.
- 7/ U.S. external demand was assumed to be 750,000 tons, which is about 50 percent higher than U.S. demand in 1980. Total U.S. demand would be 810,000 when the demand satisfied by U.S. production is added. The actual demand requirements will be furnished later when the macro estimates, defense needs, and essential civilian requirements have been determined. This U.S. demand is assumed to reflect austerity by U.S. consumers. If a no-austerity U.S. demand is available, it can be used here.
- 8/ Basic ROW demand in wartime at pre-war prices. Downward adjustments are shown below. Each country's war time demand was assumed to be equal to peak pre-war demand. No model estimates were available of the levels of economic activity in allied countries or other non-communist countries. If such estimates are possible later, they can be substituted here.
- 9/ Includes all of Western Europe except Greece Ireland, Portugal, and Switzerland (no data available). Sweden is a major consumer in other Western Europe (226,000 tons in 1979).

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PART B (cont.)

- 9/ Destruction of plant capacity and distribution systems would cutback demand in war zone countries as follows: FRG - 100% in first two war years, 75% in third year; rest of Europe - 15%, 13% and 8% respectively in the 3 war years; Japan and Korea - 7%, 6%, 5% respectively. Apply these percentage reductions to basic demand estimates shown above. These are similar to war damage estimates used in the energy study. (S)
- 10/ Sum of lines 18 and 19; the same as line 8, less war damage in line 17. (U)
- 11/ The share of the supply shortfall (see line 26 below) allocated to ROW. The allocation among the U.S., other allies, and other non-communist countries is based on weighted (by world demand shares in the war years) elasticities. The percentage allocations used here were: U.S., 25%; other allies, 40%; other non-communist, 35%. See also 13/. Since U.S. demand already reflects austerity, no further reduction in U.S. demand is required. (U)
- 12/ The required reduction in demand (lines 20 plus 23) on ROW supplies (line 0) to bring it into balance with ROW supplies. The number in parentheses is the percentage reduction. (U)
- 13/ These are the estimated prices that would have to occur (using the elasticities (e) shown) to reduce world demand to the level of available supplies. The "e's" are the weighted elasticities for the U.S., allies, and other non-communist areas; three sets were tried: (1) 0, -.2, -.4; (2) -.2, -.2, -.4; (3) -.5, -.5, -1.0. The weights were the same for all three sets: U.S., .31; allies, .48; other, .21 (using demand in lines 18, 19, and 23 to estimate demand shares). Example of price computation in 1984: percent reduction in demand required is 13%; associated price increase is  $13\% \div .24 = 54\%$ ; estimated new price is the pre-war base plus the percentage increase,  $\$200 \times 1.54 = \$308$  per ton. If line 26 is greater than zero (no reduction required), then prices were not estimated. (U)
- 14/ Prices used by the Bureau of Mines in developing the world and country capacity estimates. (U)

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PART C

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- 1/ These tables illustrate a procedure which would be used to estimate the U.S. supply/demand balance for strategic materials during a 3-year, 2-front war. The war years are 1984 (W-1), 1985 (W-2), and 1986 (W-3); 1983 (N) is the warning year; 1980 is the approximate pre-war peak for the U.S. and other economies; and 1982 is considered the base year. ROW refers to the Rest of the World -- countries outside the U.S. but excluding the Soviet Bloc; it is essentially the non-communist world outside the U.S. (U)
- 2/ Sum of U.S. and ROW in lines 6 and 14, and in 7 and 19. (U)
- 3/ From Part A, line 9. Represents supply available to ROW and potentially available for U.S. imports. Reflects adjustments to exclude unreliable supplies from some countries and shipping losses. (U)
- 4/ Net demand by ROW; from Part B, line 22. Reflects adjustments for war damage and consumer response to anticipated high prices. (U)
- 5/ Derived by applying the ratio in line 29 to the supplies lines 26, 27, and 28. The reliability categories refer to availability to the U.S. Indian supplies were considered unreliable; those from Madagascar, Turkey and South Africa were fairly reliable; the rest of the supplies were highly reliable. Note that supplies from Zimbabwe, Finland, Iran, and the Soviet Bloc had already been excluded in part A. (S)
- 6/ The sum of lines 14, 15, and 16. (U)
- 7/ Bureau of Mines estimates. "Normal" refers to expansion of capacity in response to higher prices and Government guarantees. USCP is the extra U.S. supply which could be generated under a "concerted program" whereby the Government marshalled extra resources to expand output in a specific industry. (U)
- 8/ The balances from ROW in lines 9 and 10. (U)
- 9/ These requirements were set arbitrarily and will be replaced by the demand requirements generated from the study on defense and essential civilian requirements. Here total requirements were the sums of external U.S. demand and U.S. "normal" production. (U)
- 10/ This imbalance is the Defense requirement less U.S. (normal and USCP) production and highly reliable imports.
- 11/ This imbalance is the non-Defense requirement less fairly reliable imports. Unreliable imports were not available for critical requirements. (U)
- 12/ These addenda show total non-communist capacity (Bureau of Mines estimates) available to ROW and the U.S. They do not include supplies from war zones (Finland, Iran, Soviet Bloc) nor from areas subject to internal instability (Zimbabwe). See also 5/ above. (S)
- 13/ This is the ratio of the ROW balance in line 8 to total foreign capacity in line 25. It is used to allocate the balance (line 8) into its components by degree of reliability. Its use implies that ROW demand is satisfied proportionally by the various reliable countries. See also 5/.

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(U) Critique of the Task 5 Report of the Stockpile Study:  
Estimation of Foreign Materials Demand/Supply

(U) This International Materials Supply Group was delegated the task of "developing estimates of available imports by adjusting for lower demand in war zones and for increases in capacity in foreign producing nations resulting from wartime pressures." The task report exceeds its task mandate by deriving stockpile goals from its novel methodology designed to incorporate country political reliability and shipping losses as well as available imports from foreign wartime demand and supply estimates.

(U) The methodology developed by the Treasury Department assumes that the United States in wartime will be able to import 100 percent of "excess" worldwide supplies of every stockpile commodity. For almost all stockpile commodities, the United States has never been able to even approach such a dominant import market share in either peacetime or wartime. The study ignores United States materials exports in wartime despite our historic role of finished materials supplier to our wartime allies. Wartime destruction and materials price increases operate to increase "excess" worldwide supplies available to the United States by reducing foreign but not United States materials demands.

(U) On the other hand, United States materials demands are allowed to grow according to United States wartime economic growth and materials intensive manufacturing sector shift requirements while similar nonwar zone foreign growth is not permitted. Wartime foreign materials' demands are constrained to 1980 levels before being cut further by the above war damage and price adjustments. United States wartime external demands are assumed to grow 50 percent over 1980 levels for chromium, in the only materials example shown using this methodology. Under the study's methodology, stockpile goals would supply any United States materials supply shortfall still remaining after the United States received 100 percent of residual worldwide supplies. As a consequence all measurement, data, and conceptual errors in materials demand or supply anywhere in the world will be registered in this residual difference of worldwide supply and demand.

(U) Since the United States is assumed to get 100 percent of this net supply figure, each supply or demand unit error will be directly reflected in the material's stockpile goal. This is an inherent defect of using a "residual methodology" for policy purposes and is exaggerated by the apparently inflated estimates of United States wartime imports caused by overestimating foreign supplies and underestimating foreign demands.

(S) Foreign demand elasticities are assumed greater than the United States elasticity (zero). There is no justification for the assumption that all foreign countries not rated for political reliability are of highest reliability. The "residual methodology" in effect makes Indian materials supplies available for United States wartime import despite the country's political reliability finding by Task 9's group to the contrary. Stockpile policy in the past, through concepts such as the phantom tier, has attempted to isolate measurement, data, and conceptual errors from policy areas such as the stockpile goals determination.

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(U) This methodology implicitly assumes efficient worldwide wartime markets for each commodity in which there exists high materials demand (but not simultaneous materials supply) sensitivity. If this war is at all similar to past world wars, materials rationing, allocation orders, and other forms of government and private nonprice allocation are likely to be substituted for price rationing by demand elasticities. Peacetime worldwide markets are likely to be fragmented by regional trading arrangements, currency blocs, bilateral trading agreements, exchange controls, and quantitative and qualitative trade and investment controls. Excess supplies somewhere in the world in past wars did not inevitably flow to the United States under these conditions, especially from countries not maintaining current trade relations with the United States. Our allies apparently are basing their wartime planning on past wartime history rather than the assumption that efficient international materials markets will exist in wartime. The Defense Production Act, especially its title I materials allocations for defense, and a host of contingent wartime economic control and planning powers under existing United States legislation, make the same nonmarket assumption highly likely for the United States.

(U) STOCKPILE GOALS should not be derived under free market assumptions not applied to other defense programs!

(U) The methodology is not consistent in its use of efficient markets and materials prices to exclusively clear wartime materials markets. The materials supply price does not equal the materials demand price. Assumed rather than empirical peacetime materials demand price. Assumed rather than empirical peacetime materials demand elasticities are used to allocate fixed wartime supplies. Wartime structural change will obsolete these elasticities based on peacetime incomes, relative prices, sector activity distribution, and ample substitutes. Simultaneous wartime shortages of many metals substitutes tend to decrease demand elasticities. Country income and sector activity elasticities for materials consumption may be more important than relative price elasticities for allocating worldwide supplies. Higher income growth and consequent materials demands are likely in nonwar zone foreign suppliers than in the wartime United States.

(U) The balance of payment and federal government deficits likely to result from purchasing 100 percent of excess worldwide supplies of all stockpile commodities at high wartime market prices are not indicated by this report. Perhaps these countries will demand United States materials and other exports rather than dollars in payment for their exported materials. They are not likely to unilaterally practice materials austerity in their own booming wartime economies in order to maximize United States exports. Certainly such balance of payment and government spending effects were not included in the United States macroeconomic scenario.

(S) The 6 percent, 3 percent, and 1 percent shipping supply losses in 1984-86 were based on a "shipping committee study" unavailable to FEMA. These losses seem low compared to past realizations. Members of this group assure us, without documentation, that ample shipping also is available to ship to the United States 100 percent of the excess wartime supply of each stockpile commodity. Shipping also is assumed to be

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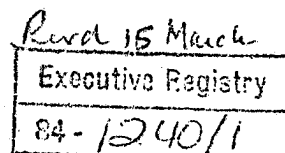
to export our goods to these countries in payment. This United States control of wartime free world shipping appears to be the major control point for United States commerce over wartime allies, neutrals, and noncombative adversaries. Yet the number of United States registered ships and merchant marine vessels continues to decline. The supply study, if it exists, should be widely distributed among the Demand/Supply group's members to determine if its findings can justify this heavy burden of persuasion and the unusual worldwide wartime context in which the group appears to be applying its findings.

(S) This study uses Interior Department estimates of expanded wartime materials production for all stockpile commodities throughout the world. Despite long gestation lags necessary to increase metals capacity, DPA Title III and other programs (estimated at over \$126 billion) required to achieve Interior's forecasted expansion are not even in place in the United States. Metals capacity cutbacks have been the 1980's experience in the United States and Europe. Despite the fact that world oil production has been cut 42 percent in this scenario and that many metals' production and capacity expansion processes are energy intensive, metals production is assumed to expand greatly throughout the world for the 93 stockpile materials. Large amounts of energy will also be required to expand all manufacturing industries supporting the war economy throughout the free world. Assuming the United States has the control mechanisms to enforce a worldwide allocation of energy supplies by industry and could effectively distribute energy to minerals producing countries, FEMA is concerned there may not be nearly enough free world oil available to expand the entire free world industrial base as well as metals production. Wartime oil shortages are critical, since national energy deficits are almost entirely offset by oil imports.

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NATIONAL SECURITY COUNCIL  
WASHINGTON, D.C. 20506



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March 12, 1984

MEMORANDUM FOR

MR. CHARLES HILL  
Executive Secretary  
Department of State

MR. THOMAS B. CORMACK  
Executive Secretary  
Central Intelligence Agency

MR. CHRISTOPHER HICKS  
Executive Secretary  
Department of the Treasury

MS. JUDY JOHNSTON  
Director of Administration  
Office of Policy Development

COL. JOHN STANFORD  
Executive Secretary  
Department of Defense

MR. WILLIAM NISKANEN  
Member, President's Council  
of Economic Advisors

MR. RICHARD MORRIS  
Executive Assistant to  
the Secretary  
Department of the Interior

BRIG. GENERAL GEORGE A. JOULWAN  
Executive Assistant to the Chairman  
Joint Chiefs of Staff

MS. HELEN ROBBINS  
Executive Assistant to  
the Secretary  
Department of Commerce

MR. GERALD CARMEN  
Administrator  
General Services Administration

MR. WILLIAM VITALE  
Executive Secretary  
Department of Energy

MR. LOUIS O. GIUFFRIDA  
Director, Federal Emergency  
Management Agency

MR. ALTON KEEL  
Associate Director for  
National Security and  
International Affairs  
Office of Management and Budget

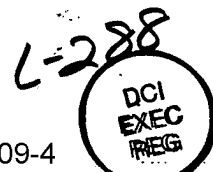
MR. CHARLES SIEGMAN  
Associate Director  
Federal Reserve Board

MR. FRED J. VILLELLA  
Secretariat, Emergency Management  
Preparedness Board

SUBJECT: National Defense Stockpile Goals Review

Attached are copies of the draft reports of the Macroeconomic, Materials Demand and Energy Working Groups for review and comment by your agency. Please circulate these to concerned officials within your agency and provide one set of comments on these reports under the signature of an Assistant Secretary-level official to Richard Levine of the NSC staff not later than Thursday, March 15.

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The Steering Group will hold a meeting at 11:00 a.m. on Tuesday, March 20 in Room 208 of the Old Executive Office Building. Please provide the name of your agency's representative to Cathy Connolly on 395-7350 by 4:00 p.m. on Monday, March 19 so that we can arrange clearance into the building.

  
Robert M. Kimmitt  
Executive Secretary

Attachments

TAB A      Macroeconomic Working Group draft report  
TAB B      Materials Demand Working Group draft report  
TAB C      Energy Working Group draft report

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WASHINGTON, D.C. 20506

MARCH 13, 1984

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## MEMORANDUM FOR

MR. CHARLES HILL  
Executive Secretary  
Department of StateMR. THOMAS B. CORMACK  
Executive Secretary  
Central Intelligence AgencyMR. CHRISTOPHER HICKS  
Executive Secretary  
Department of the TreasuryMS. JUDY JOHNSTON  
Director of Administration  
Office of Policy DevelopmentCOL. JOHN STANFORD  
Executive Secretary  
Department of DefenseMR. WILLIAM NISKANEN  
Member, President's Council  
of Economic AdvisorsMR. RICHARD MORRIS  
Executive Assistant to  
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Department of the InteriorBRIG. GENERAL GEORGE A. JOULWAN  
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Joint Chiefs of StaffMS. HELEN ROBBINS  
Executive Assistant to  
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Department of CommerceMR. GERALD CARMEN  
Administrator  
General Services AdministrationMR. WILLIAM VITALE  
Executive Secretary  
Department of EnergyMR. LOUIS O. GIUFFRIDA  
Director, Federal Emergency  
Management AgencyMR. ALTON KEEL  
Associate Director for  
National Security and  
International Affairs  
Office of Management and BudgetMR. CHARLES SIEGMAN  
Associate Director  
Federal Reserve BoardMR. FRED J. VILLELLA  
Secretariat, Emergency Mobilization  
Preparedness Board

SUBJECT: Completion of NSC Stockpile Goals Review (U)

The NSC Stockpile Goals Review needs to be completed by April 30. Interagency efforts should be accelerated to meet this date. A number of questions have been raised by various agencies regarding working group reports. In future, the following process will be used: (S)

Step 1. Working Group Chairmen will provide their reports to the NSC Chairman (Richard Levine--395-7351) following the attached schedule (Tab A). (U)

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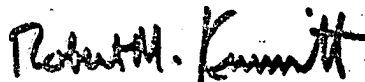
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Step 2. The NSC Study Chairman will transmit the report to each agency's Executive Secretariat. It will be the responsibility of each agency's Executive Secretariat to forward reports to agency steering group representatives. (U)

Step 3. Each agency shall provide to Mr. Levine one set of comments, at the Assistant Secretary-level or higher, on the report and a position regarding the report's recommendations. (U)

Step 4. The NSC Study Chairman will then schedule a meeting through each agency's Executive Secretariat to discuss working group reports and agency comments. Resolution of agency differences will occur within the NSC system. This process will be aided by a Deputy Assistant to the President for National Security Affairs bringing together senior representatives from concerned agencies to work through problems as appropriate. Following this process, minutes will be transmitted. (S)

The completion date of April 30 is demanding. Priority attention of all concerned agencies is crucial. (S)



Robert M. Kimmitt  
Executive Secretary

Attachment

TAB A Study schedule and flow chart

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As of 3/12

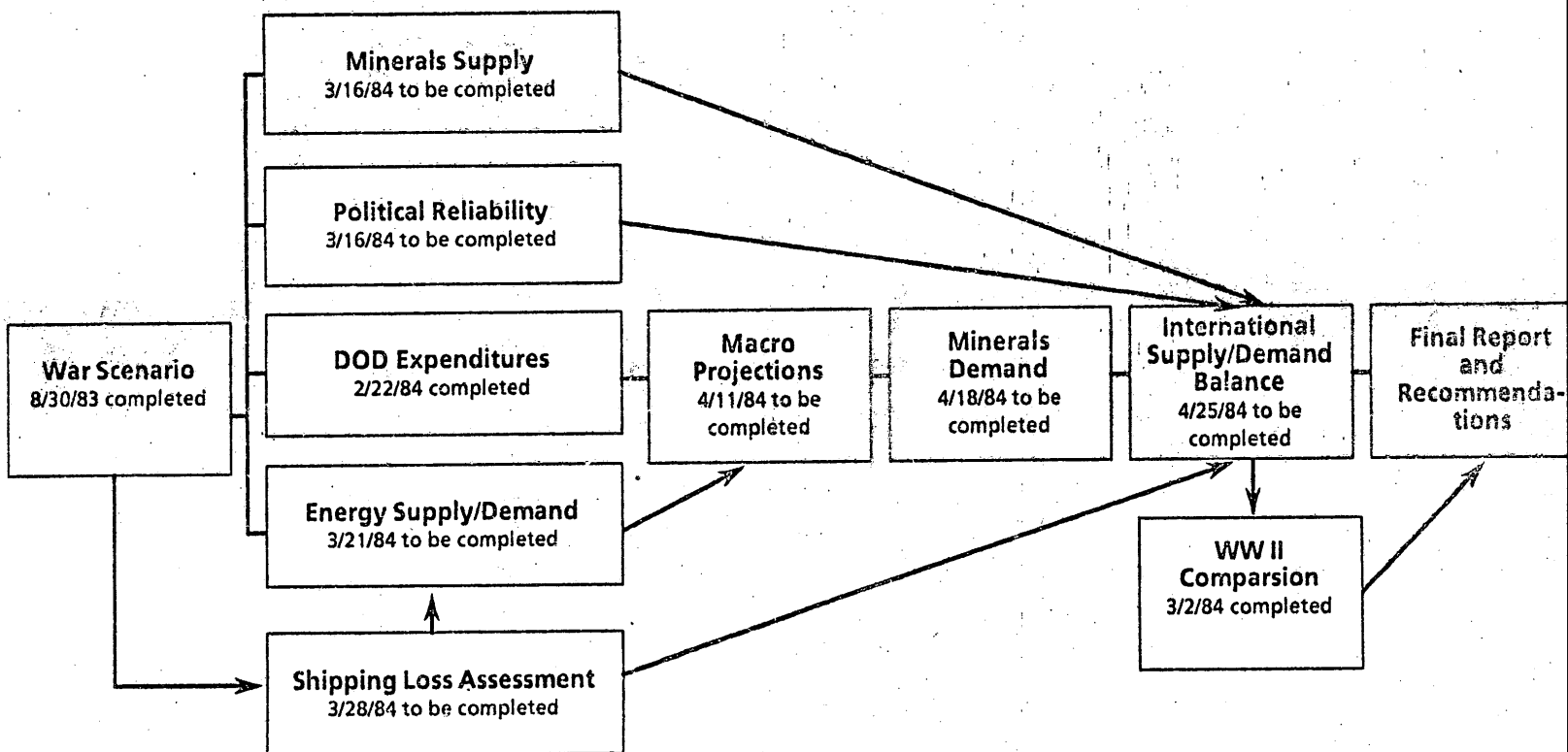
NSC STOCKPILE GOALS STUDY--CURRENT SCHEDULE

<u>Study Task/Agency</u>	(1) Working Group Report Completed; Sent to NSC Chrm. and Circu- lated to Steering Group Members	(2) Steering Group Member (Agency) Formal Comments to NSC Study Chrm. and Working Group Chrm.	(3) Steering Group Meeting to Review Comments	(4) NSC Review and Decision
1. War Scenario.....				Complete: Scenario Chosen 8/30/83
2. Minerals Supply.....DOI--Morgan	1/22/84	2/17/84	3/14/84	3/16/84
3. Political Reliability.....CIA--Ernst	1/26/84	3/2/84	3/14/84	3/16/84
4. DOD Expenditures.....DOD--Donnelly	2/22/84	Complete	Complete	Complete (2/22/84)
5. Energy Supply/Demand/Price....NSC--Levine	3/9/84	3/15/84	3/20/84	3/21/84
6. Macroeconomic Projections.....CEA--Anderson				
a. Macroeconomic Projections/Assumptions....	3/9/84	3/15/84	3/20/84	3/21/84
b. Input/Output Table Projections.....	3/30/84	4/5/84	4/10/84	4/11/84
7. U.S. Minerals Demand.....Commerce--Farb				
a. Methodology.....	3/9/84	3/15/84	3/20/84	3/21/84
b. Estimates.....	4/6/84 (Existing)	4/12/84	4/17/84	4/18/84
8. Shipping Loss Estimates.....OMB--Gessaman	3/16/84	3/22/84	3/27/84	3/28/84
9. International Demand/Supply...Treasury--Gale				
a. Methodology.....	3/16/84	3/22/84	3/27/84	3/28/84
b. Estimates.....	4/13/84	4/19/84	4/24/84	4/25/84
10. WWII Assessment.....DOI--Morgan	1/84	3/2/84	2/17/84	Complete (3/2/84)
11. Final Report and Recommendations				

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# NSC STOCKPILE GOALS STUDY 1984

Study Chairman Richard B. Levine



**NATIONAL SECURITY COUNCIL**  
WASHINGTON, D.C. 20506

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MEMORANDUM FOR

MR. CHARLES HILL  
Executive Secretary  
Department of State

MR. THOMAS B. CORMACK  
Executive Secretary  
Central Intelligence Agency

MR. CHRISTOPHER HICKS  
Executive Secretary  
Department of the Treasury

MS. JUDY JOHNSTON  
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Joint Chiefs of Staff

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MR. GERALD CARMEN  
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General Services Administration

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MR. LOUIS O. GIUFFRIDA  
Director, Federal Emergency  
Management Agency

MR. ALTON KEEL  
Associate Director for  
National Security and  
International Affairs  
Office of Management and Budget

MR. CHARLES SIEGMAN  
Associate Director  
Federal Reserve Board

MR. FRED J. VILLELLA  
Secretariat, Emergency Management  
Preparedness Board

SUBJECT: Stockpile Steering Group Meetings--February 1 and 24, 1984  
(U)

The reports of the working groups on Domestic and International Materials Capacity and Political Reliability were reviewed and approved as follows: (U)

Domestic and International Materials Capacity

- o Domestic--The capacity estimates, including expansions under the "concerted programs," were adopted as the domestic supply estimates for civilian and military requirements. Once mineral demand estimates are available, a determination will be made as to what extent the concerted program expansions are needed. Once

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this determination is made, the concerted program will be reviewed to determine whether the portion needed can be achieved simultaneously and to what extent prioritization of programs is required. The final report of the Working Group will contain an elaboration of the assumptions underlying the projections. (S)

- o International--The capacity estimates will be adopted as the supply estimates for military and civilian requirements. These estimates will be adjusted for political reliability, shipping losses, international trade flows, and wartime materials demands of other nations in the supply/demand balancing equations being developed by the Treasury-led Working Group. (S)

#### Political Reliability

The recommendations of the CIA/DIA/State intelligence community Working Group will be adopted pending possible substantive interagency comment, which will also be considered in the Study's final report. (S)

- o Category 1 nations (highly reliable)--would be relied upon for military and civilian tiers' needs. (S)
- o Category 2 nations (fairly reliable)--would be relied upon only for civilian tiers' needs. (S)
- o Category 3 nations (unreliable)--would not be relied upon for any needs. (S)

#### World War II Comparison

In a follow-on Steering Group meeting, the group approved John Morgan's study for incorporation into the final report. (U)

  
Robert M. Kimmitt  
Executive Secretary

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MEMORANDUM


NATIONAL SECURITY COUNCIL

March 12, 1984

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ACTION

MEMORANDUM FOR ROBERT M. KIMMITT

FROM: RICHARD LEVINE   
SUBJECT: Completion of NSC Stockpile Study

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Attached at Tab I, please find a memo from you to the agencies requesting their cooperation in completing the stockpile study by April 30. This intensified effort is necessary in order to serve our needs in the machine tools 232 case. After a week long discussion with Don Fortier on his possible role in bringing together senior-level agency officials to complete this study, Don and I agreed to leave the reference to Deputy Assistant to the President for National Security Affairs participation vague. This would be so that you, Don or the Admiral could chair such meetings (a total of four are expected over the next two months). This will allow everyone concerned greater flexibility.

Attached at Tab II is a memo from you to the agencies recounting the interagency-cleared minutes of the last two steering group meetings.

RECOMMENDATION

That you sign the memos to the agencies at Tabs I and II.

Approve K Disapprove \_\_\_\_\_

Attachments

TAB I Memo to the agencies  
TAB A Study schedule and flow chart  
TAB II Memo on steering group minutes

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**NATIONAL SECURITY COUNCIL**  
WASHINGTON, D.C. 20306

January 17, 1984

**Executive Registry**

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**MEMORANDUM FOR**

**MR. CHARLES HILL**  
Executive Secretary  
Department of State

**MR. THOMAS B. CORMACK**  
Executive Secretary  
Central Intelligence Agency

**MR. CHRISTOPHER HICKS**  
Executive Secretary  
Department of the Treasury

**MS. JUDY JOHNSTON**  
Director of Administration  
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Associate Director for  
National Security and  
International Affairs  
Office of Management and Budget

**MR. CHARLES SIEGMAN**  
Associate Director  
Federal Reserve Board

**MR. FRED J. VILLELLA**  
Secretariat, Emergency Management  
Preparedness Board

**SUBJECT: Stockpile Study Completion**

It is our desire to complete the NSC Stockpile Goals Study by March 1984 for presentation to the full EMPB and then the NSC.

Attached is the completion schedule of outstanding working group tasks, distribution dates to all agencies, and the dates of steering group meetings.

Agency participation at the four steering group meetings should continue to be at the Assistant Secretary level, plus one. Richard Levine of the NSC Staff (395-7351), will handle overall coordination for these meetings.

*Robert M. Kimmitt*  
**Robert M. Kimmitt**  
Executive Secretary

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EXEC  
REG

Attachment

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<u>Task</u>	<u>Working Group Chairman</u>	<u>Distribution Date to Steering Group Members*</u>	<u>Steering Group Meeting Date</u>
1. Political Reliability	Maurice Ernst (CIA)	January 26	February 1
2. Domestic and International Materials Supply	John Morgan (DOI)	January 26 (subject to change)	February 1
3. Energy	Ron Glozer (OMB)	January 26	February 1
4. Sealift Attrition	Don Gessaman (OMB)	February 8	February 13
5. Macro- econometric Projections	Lincoln Anderson (CEA)	February 8	February 13
6. Domestic Materials Demand	Warren Farb (DOC)	TBA	TBA
7. International Materials Balance/ Stockpile Goals	Hazen Gale (Treasury)	TBA	TBA
8. Final Steering Group Review	Richard Levine (NSC)	TBA	TBA

\* Working Group Chairman are to be responsible for the distribution of their studies to all steering group members.

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